The New York State
Conservationist
February-March 1955

"Sugaring Off" by Eastman Johnson (circa 1870)

State of New York Conservation Department

"HAULING IN THE GILL NET", *(The St. Lawrence River) by Frederic Remington*

From Harold McCracken's book, "Frederic Remington, Artist of the Old West"

Traverse completed
Al King

According to "The Handbook for Surveyors", written by Mansfield Merriman in 1903, the term *traverse* is commonly used by surveyors to define a series of lines whose lengths and relative directions are known. The book then goes on to say that *"Traversing is particularly applicable to the survey of long and circuitous routes through territory presenting natural obstructions to long sights."*

Al King died on November 9th, 1954, traverse completed. For 42½ years he had worked for the Conservation Department as a Forest Surveyor, mostly in the southern Adirondacks, mostly discovering with an uncanny ability the tracks and traces of those rare characters with the same blood and spirit who had gone before him, blazing the lines of the wilderness. Behind him he left an extraordinary and invaluable permanent record of his work, including 378 carefully drawn maps and 64 neatly indexed field books—now under lock and key in the Department's files.

But Al also left something else behind him—a rare devotion, a sense of complete and selfless dedication that reflected great credit upon the Department for which he worked. This is best summed up in his own simple words, written shortly after he retired in 1952:

"Together, our family now all grown to maturity with families of their own, we are spending happy years growing young again in spite of a few gray hairs and an occasional ache or two. We have eight grandsons, and one recently arrived granddaughter—whom we hope not to spoil.

"My career as a forester has been a happy and satisfactory one. The remuneration relative to other professions has been rather below the average, but mostly adequate to meet my obligations, and there are those intangible compensations which one cannot place a value on, and the satisfaction of knowing one has led a useful life and contributed of his best."

A long sight, in the survey of a long and circuitous route.—Editor

Contents

VOLUME 9 NUMBER 4
FEBRUARY-MARCH, 1955

(First Cover		*Eastman Johnson)*
(Second Cover		*Frederic Remington)*
OCEAN CURRENTS, POLLUTION—AND FISH	2	*John C. Ayres*
SUGARING OFF	4	*Nick Drahos*
WE TRAIN NEW HUNTERS	6	*Dr. Henry M. Stebbins*
TROUT FROM HEAVEN	8	*P. W. Fosburgh*
PONDS (1)—WHERE TO BUILD THEM	10	*Roy Irving*
MINING AND PROSPECTING IN NEW YORK	12	*John James Prucha*
MINING LAWS OF NEW YORK	13	*Percy Lieberman*
X-RAYS IN WILDLIFE	16	*James R. Reilly*
THE CARE OF RAW FURS	17	*Arthur H. Cook*
PREHISTORIC MAMMALS OF NEW YORK	18	*Donald W. Fisher*
(Center Spread	20	*H. Wayne Trimm)*
LAKE TENNANAH	23	*John S. Grim*
REPORT ON THE 2-DEER SEASON	25	*A. W. Bromley*
ONONDAGA COUNTY	27	*H. Wayne Trimm*
THE BACK OF THE BOOK	28	*(Scatter Shots, Etc.)*
LETTERS TO THE EDITOR	34	*(From Our Readers)*
THAT FABULOUS FELLOW—THE FOX	40	*Clayt Seagears*
(Third Cover		*Clayt Seagears)*
(Fourth Cover		*A. F. Tait)*

STATE OF NEW YORK, AVERELL HARRIMAN, *Governor*
CONSERVATION DEPARTMENT, LOUIS A. WEHLE, *Commissioner*
JUSTIN T. MAHONEY, *Deputy Commissioner*
JOHN F. DALY, *Secretary*
CONSERVATION EDUCATION, CLAYT SEAGEARS, *Director of Division*
THE CONSERVATIONIST, P. W. FOSBURGH, *Editor*
A. W. BROMLEY, ROLAND B. MILLER, *Editorial*
MICHAEL C. WALES, *Circulation Manager*
EARL McGUIRK, FRED CHAMBERS, *Photographers*
W. I. VAN DER POEL, JR., *Design and Typography*

TO SUBSCRIBE. Print your name, street address, zone and state. Send with $1 (check, money order or cash at senders' risk) to *The Conservationist*, Room 515, Arcade Bldg., Albany 1, N. Y. Single copies, $.25. NO STAMPS, PLEASE.

Permission is granted to reprint any text from this magazine provided proper credit is given to the New York State Conservation Department and to this magazine.

The Conservationist is an official publication of the N.Y.S. Conservation Dept., published every two months at the Department's offices, Arcade Bldg., Albany, N. Y. No advertising accepted. Subscription rate $1.00 per year. Entered as Second Class matter July 24, 1946 at the Post Office at Albany, N. Y. under Act of March 3, 1879. Printed in U. S. A.

Ocean Currents, Pollution—and Fish

by John C. Ayers, *Associate Professor of Oceanography, Cornell University*

THE shorelines of southern New England, New York, and New Jersey front directly upon the Atlantic Ocean for more than two hundred air-line miles, and the bays, sounds, and coves which provide additional contact with salt water add hundreds more miles to the total. During recent years the summer surface currents that result from the winds and the in-and-out action of the tides in these waters have been worked out. It is now possible to combine this current pattern with other kinds of knowledge and arrive at the bare beginnings of an over-all understanding of the region. Sportsmen in general, and fishermen and conservationists in particular, should find this over-all picture of interest—for it is beginning to indicate why some of the summer fishing grounds are located where they are, and also to point out potentially food-rich areas where developmental work might pay off in terms of improved fishing.

There are three major factors in the picture which is beginning to form: The currents, shallow salt water in great quantity, and foreign substances which enter the waters as a result of man's presence and activities (pollution).

A few words about pollution are in order, for the effects of pollution as observed here are not those commonly encountered. It's a new twist, but pollution delivered to the coastal salt waters between New England and New Jersey appears to be contributing to the support of the coastal fisheries in that area. Certainly one must not overlook the serious effects of concentrated organic pollution in certain bay and inshore areas of New York's Marine District. Extremely valuable shellfish grounds have been lost and extensive beach areas closed to recreation, particularly along the south shore of Long Island, because of heavy organic pollution—for which the famous duck farms of that area have been largely responsible. However, the discolored water, lack of oxygen, noxious odors and the like—commonly associated with such pollution—occur in places where the quantities of clean diluting waters are insufficient to handle the volumes of pollutants.

Dilution with vast amounts of clean water, and slow currents that keep the pollutants in warm shallow water are characteristic of the coastal region. Under these conditions pollution is neutralized by chemical and bacterial actions of the sea water and decomposes into a number of simple substances which contain minerals useful to aquatic plants as fertilizers. Under these conditions pollution decomposes into fertilizer, fertilizing the microscopic aquatic plants which are the grasslands of the sea. These grasslands respond to the fertilizer just as would any other meadow—by increased growth and abundance. When the microscopic plants flourish they furnish abundant food for the small animals that feed upon them, and these small animals in turn are food for larger animals. To paraphrase an old bit of doggerel:

Little "bugs" have bigger "bugs"
That feed upon and fright 'em,
And bigger "bugs" have greater "bugs"
And so ad infinitum,

until at the end of the chain of foods there are the fishes and the animals (including man) that feed upon fish.

The success of the whole aquatic biology depends more or less directly upon the success and abundance of the microscopic plants. These plants and the minerals that they depend upon are carried by the currents; and the slowness of the coastal currents gives time enough for the minerals to be used by the plants, for the plants to be eaten by small animals, and for the small animals to be eaten by the fish before the whole business is carried out of the area.

The currents

Since the major sources of pollution are known, the coastal currents should automatically trace out the paths of the pollution-derived fertilizers and point out the places where they stimulate the biological economy.

There are two relatively large current systems in the region between Cape Cod and New Jersey: The Coastal Current inshore of the 25-fathom line, and the Southwest Drift outside of twenty-five fathoms. The Southwest Drift is the northern side of an eddy, elongated in a northeast-southwest direction, which lies between the Gulf Stream and the Coastal Current. This eddy apparently derives the energy for its rotation from the Gulf Stream. Floating objects set adrift in the Southwest Drift come ashore in the vicinity of Cape Hatteras, North Carolina.

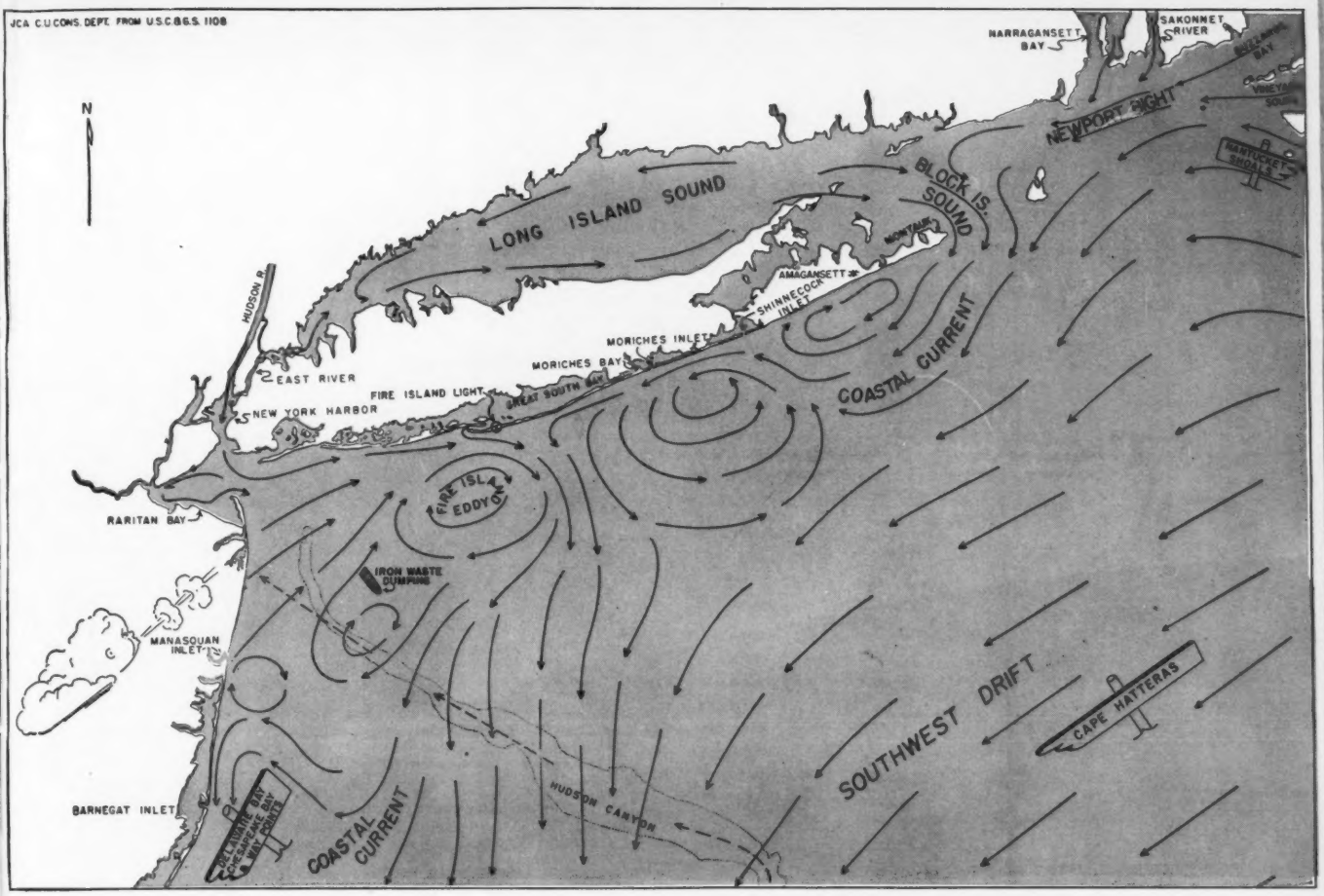
The waters making up the Coastal Current enter the region from the Southwest Drift, from Nantucket Shoals, Vineyard Sound and Buzzards Bay. Waters from the Southwest Drift and Nantucket Shoals enter Newport Bight in a northwest direction, then turn and leave the Bight in a southwest direction, passing south of Block Island after emerging from the Bight. Waters from Vineyard Sound and Buzzards Bay work west along the top of the Bight, receiving some pollutants and pollution-derived fertilizers from the Sakonnet River and Narragansett Bay before moving between Block Island and the mainland into Block Island Sound.

In Block Island Sound the water from Newport Bight meets water emerging from Long Island Sound. The Long Island Sound water also carries fertilizers derived from decomposed pollution. A mixture of Newport Bight water and Long Island Sound water flows out between Montauk Point and Block Island; incidentally, the pass between Montauk and Block Island is the site of a thriving party-boat fishery.

After rounding Montauk the outflow from Block Island Sound turns west, passes outside a clockwise eddy off Amagansett, then turns northwestward and comes in to the beach near Shinnecock Inlet. From Shinnecock to Fire Island Light the enriched water flows along the beach, contributing some of its richness to an eddy just offshore southeast of Moriches Inlet. Water carrying the aqueous extract of duck manure emerges from Moriches Inlet to further fertilize the flow along the beach. It is of interest to note here that the course of these fertile waters from Shinnecock to Fire Island Light is exactly the same as an area long used as a fish-trap grounds.

Off Fire Island Light is a large eddy which receives the fertilized water flowing westward along the beach. It also receives the effluents of New York Harbor and Raritan Bay which move eastward along the Long Island beaches to join it. Fire Island Inlet contributes water enriched with duck manure extract and small amounts of decomposed sewage. The waters of the Fire Island Eddy and its southward discharge are enriched fivefold: From Moriches Bay and Block Island Sound to the east, and from New York Harbor, Raritan Bay, and Fire Island Inlet on the west.

The effluents of New York Harbor and Raritan Bay in summer are swept east and east northeast by currents resulting from the prevailing summer southwesterly winds. Surface waters are blown away from the New Jersey beaches north of



Manasquan Inlet and are replaced by mineral-rich bottom waters upwelling from depths of 10 to 15 fathoms. Continued blowing of surface water away from the beaches and continued upwelling bring additional minerals to the surface and then carry them to the Fire Island Eddy. Practically every one of the named summer fishing grounds in the area off New York Harbor lies beneath the waters upwelled along the New Jersey shore, beneath the Fire Island Eddy, or beneath the escapement from the eddy.

Water escaping from the Fire Island Eddy passes south from the eddy and lies 20 to 25 miles off the New Jersey shore until, at the level of Barnegat Inlet, a part of it turns westward and runs to the shore before turning south and leaving the area; the rest continues southward about 20 miles offshore.

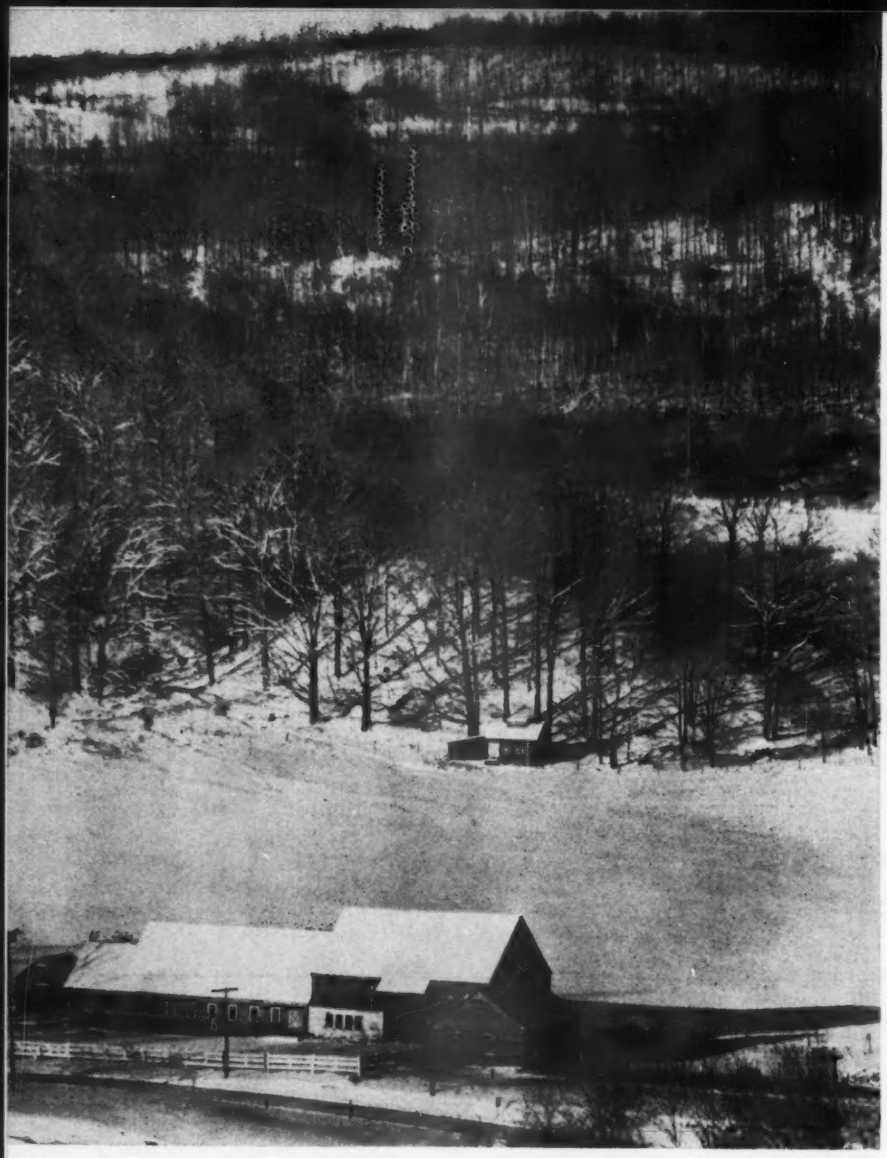
Subsurface conditions in summer indicate that there is a northwestward drift of bottom water (dashed arrows) in the Hudson Canyon. This water, being beneath the escapement from the Fire Island Eddy, receives a slow rain of dead and dying organisms from the enriched water above. These organisms decompose and add their minerals to the bottom water. The bottom water here is also in a position to receive small amounts of iron from the iron-waste dumping grounds where iron compounds sink after dumping. Iron in small quantities is also a plant fertilizer. The minerals brought to the surface in the upwelling along the New Jersey shore are probably in part from the general mineral reservoir in the subsurface water of the open sea, and in part minerals regenerated by decomposition of dead organisms rained down from the surface water, plus small amounts of iron from the dumping grounds.

Current eddies which remain in one place tend to accumulate the basic microscopic plants and small food organisms in their centers. In the quiet waters of the eddy centers at least a part of this food material can settle to the bottom. Thus the eddies are places where fish foods may be expected to be more concentrated than normal. Whether they support more-than-normal numbers of fish appears to depend upon bottom type and amount of bottom cover.

Thus the stage is set to undertake a unique form of fisheries management by providing bottom cover and improving the habitat for marine food organisms concentrated in these off-shore eddies. Pilot operations of this sort have, in fact, been tried. One of these is the so-called "McAllister Grounds," located approximately two and three-quarter miles south of Long Beach, Long Island.

In 1949, Fisheries Biologists of the Conservation Department's Bureau of Marine Fisheries, in co-operation with Captain Jefferson D. Beard (Supervisor of the New York Harbor) and the McAllister Lighterage Company, created this man-made fishing grounds by dumping on the ocean bottom some 2,000 cubic yards of brick and concrete rubble from a New York City construction project. On the ocean bottom, 2,000 cubic yards of rubble dwindles to insignificant proportions, yet within a short time this newly created fishing grounds proved attractive to fish—and to fishermen.

As stated, this was a pilot project. But in view of our increased knowledge of the relationship between coastal currents, pollution and fish, there is reason to believe that wiser use and greater development of our salt water resources may result.



A typical sugar bush. Farm belongs to A. E. Lincoln, Stephentown, Rensselaer County.

Sugaring Off

SUGARING off still proves to be a profitable slack season business on New York farms, even 'though the 378,000-gallon syrup crop of 1954 was only a good drop in the bucket compared to the 1935 record crop of 987,000 gallons. The value of the maple syrup crop in 1954 was $1,666,300.

Few people realize that the maple syrup industry is almost totally confined to the Northeast. And, that more than 70 per cent of the total production in the U. S. comes from New York and New England with at least 33 per cent of the total coming from New York State. The five leading states in 1954 were Vermont, New York, Pennsylvania, Michigan and Ohio —with Pennsylvania jumping from fifth place in 1953 to third in 1954.

In New York, the average farm production is anywhere from 150 to 5,000 buckets. Above the 5,000-bucket mark one gets into the commercial field, big time—not average farm—business. Quite a bit of New York's commercial syrup ends up being shipped to Vermont in drums and returns with Vermont labels while most of the out-of-state retail crop is shipped to Texas, California and parts of Europe and Asia (where syrup was introduced by the Armed Forces).

Chief syrup producing counties in New York are: St. Lawrence, Chautauqua, Lewis, Cattaraugus, Wyoming, Allegany, Franklin, Cortland, Delaware, Chenango and Jefferson in order of volume production. The 10-year average from 1941-1951 for maple syrup in New York is 570,000 gallons of syrup and 82,000 pounds of sugar.

The 1954 season was the earliest on record, going back to 1933 for New Hampshire, Vermont, Massachusetts, New York, Pennsylvania and Michigan. The average first run began on February 25 (day on which trees were first tapped) and the average last run ended April 9th (day on which sap collecting was stopped), giving maple syrup producers one of the longest runs on record. The big drawback on an early season run is a reduction of sap quality. In 1954 it took almost twice as much sap to produce a gallon of syrup as in the previous year. (Normally, it takes about 15 quarts of sap to make one quart of syrup.)

Farmers would profit by keeping livestock out of the sugar bush. A 5-year record of two adjoining plots in Ohio, one grazed and the other ungrazed, showed a surplus of 5.7 gallons of syrup per acre in favor of the ungrazed plot for each year. Fencing increased the earnings $24.79 (at today's prices) per acre. The average price for syrup in 1954 was $4.35 a gallon.

By-products of sugaring are *jack wax*, *maple cream* and *sugar*. If you raise the temperature of syrup 18 to 20 degrees above the boiling point of water and pour it over snow or cracked ice, you get a chewy sweet called *jack wax*. If you pour the syrup into a flat dish, allow it to cool rapidly to room temperature and stir continuously for 15-20 minutes, you get *maple cream* or *butter*. But, if you allow the syrup to boil until the temperature gets to 28 or 30 degrees higher than that of boiling water, *hard* or *cake sugar* is your end product. The hot syrup is stirred immediately and poured into fancy molds of maple leafs, rabbits, etc.—or put up in ½-pound or pound blocks.

Drop in on your neighboring maple syrup producer and savor a bit of American folklore—and sugar.

—NICK DRAHOS

A portable machine drill makes the job of hanging buckets, bags and jugs easy.

One to five buckets are hung per tree, depending on the size of the tree. Transparent buckets (about 79¢ per) show the sap level, but mice eat holes in them.

Ideally, a sugar bush contains 60 to 75 tappable trees per acre and is located near woods roads to make the job of collecting sap less costly and laborious. Picture shows a nice set-up for collecting sap.

Tractors or horses pull the sap collecting vats which hold 400 or more gallons. Sap is collected 1-3 times a day.

Collecting vat is emptied into a 500 to 1,000-gallon storage tank within the sap house via pipes.

Stirring scoop tests thickness of sap. A pinch of cream dropped in at height of boil keeps sap from boiling over sides.

A hot fire is a must while sap circulates in the evaporator tanks. Slab lumber is ideal fuel. Some outfits use oil.

A Baumé hydrometer is floated in a cylinder of syrup to weigh it. 11 pounds to the gallon is ideal and best for market.

Boilers are fired and syruping begins. Steam pours forth with a vengeance. Work is usually done at night, after chores.

Syrup is strained through heavy felt filters to get rid of malate of lime and then is run into tins, ready for the consumer.

We Train New Hunters

by Dr. Henry M. Stebbins, Owego

CARS grind up the last steep grade to our sportsmen's clubhouse, their exhaust vapor curling out thin gray in the still, sharp air. Each car discharges a boy or two—and there are a couple of girls, too—until a dozen young people are moving up on the whitewashed, cinder-block building. They move slowly and a little uncertainly; yet they appear more curious than hesitant.

Their friends have told them of this Junior Hunter school and of the exam they must pass before they can buy their first hunting license. Most of them are confident enough to have the $2.25 fee tucked away in a pocket, ready for the first issuing agent they can run to earth after the morning's work. Each one carries a rifle or shotgun, and most of them have heard that it is smart to have the action open, the piece obviously unloaded. Few, however, have learned to "watch that muzzle."

Fay and I exchange satisfied smiles. "Just about the ideal number," he remarks. "Enough for a good sized class; not too many. They look keen, too."

But our work has begun, and the first detail is to explain to one or two solicitous parents that it's really better if they leave the kids and come back at noon. Everyone pays more attention when there are no visitors. We explain this quietly and without haste, and the rule is accepted.

The youngsters rack their guns outside the clubhouse, one of us opens a closed bolt, and immediately several other clicks are heard. A glance swept down the array now shows every gun open or "broken."

We all troop into the warm clubhouse and the kids take the chairs set out for them. Registration breaks the ice, each one filling out his own card. These are collected, and our pupils look up expectantly.

We introduce ourselves and one of us takes the first trick at the wheel—and a mightly important "steering wheel" it is.

"What you learn this morning," he says, "will have to last you the rest of your lives. Of course, if you go on and become real hunters you'll learn a lot more. All we can do in these four hours is to give you the right start."

Kids like straight talk, and most of them now understand that they'll get it. One or two sit back defiantly, supercilious and bored. We disregard that attitude, for we know that it won't last.

The first fare of our lecture, and the solid meat throughout the talk, demonstration and exercise, is the basic advice: *Watch that muzzle!* Now it is a fact that a youngster under 14 must be reminded again and again to be mindful of where that black circle of danger is centered, but our candidates are older, and we instill the idea pretty thoroughly before noontime rolls around. When they leave, they have the thought to take with them (a new thought, unfortunately, to most of them) that loaded or empty, a gun deserves respect.

Along with our bearing down on muzzle-consciousness goes the motto: *Be sure of your target.* You can't whistle back a charge of shot or a bullet, once released. Two or three brief stories of "freak" accidents, which never would have happened at all under reasonable care, sharpen the point of that precept.

We go on to gun-handling. Most of this we demonstrate with actual firearms, for the kids are interested and willingly soak up comments on the different types. We show how to exhibit or to inspect a gun—action open, muzzle pointed away—and the safe carries afield or along the street. But we use a broom, too. It's handy, for teaching comes in three parts: Precept, example, and horrible example. So the "muzzle" of the broom does tricks that we shouldn't care to demonstrate with any firearm. The kids catch on fast. Their 8 o'clock yawns ceased long ago. Again and again we return to the ideas of muzzle-awareness and of responsibility for every shot fired. Most good teaching depends upon the unobtrusive, patient, tap-tap-tap method.

Quite often at about this time in our course a late arrival opens the door. This is too bad, for we have to explain that the course is so concentrated that he couldn't possibly get the full benefit of it, arriving so late. It isn't a hurdle to be jumped, but instruction that our State considers necessary for his own and others' safety. So we tell him when and where the next class will be held. The other kids are a little surprised, but any lurking doubt that this business isn't serious goes out the door with the late comer.

Know your gun and ammunition comes next, and the kids really want to know. We pass around a few typical shell and cartridge specimens. Then we explain the purposes of various shot sizes and bullet types, advising them never to be stingy in buying the best ammunition for hunting, 'though that needn't mean the heaviest 12 and 16 gauge loads. Such loads might induce flinching.

Killing ranges and the much longer danger zones are explained, for it's well to mix practical hunting advice with comments on safety, and we give them the basic information on matters like sighting, trigger squeeze, firing positions, and the swing and follow-through on moving game. The common hazards are mentioned—plugged muzzles, worn safeties, unconscious reloading after a shot, the sticking of loads in a tubular magazine, and what 20 gauge shells can do to a 12 gauge gun, or 28's to a 16 or 20, when one slips down the barrel and is forgotten until a proper sized shell is loaded and fired behind it.

By this time the kids have had a solid chunk of instruction, and 'though it's been interestingly varied, the time has come for a ten minute break. During this interval some hang around and start us on gun and game talk (not a hard pump to prime) while others look over the arms in the rack outside. They are mindful of muzzles, you may be sure, for some of the good stuff has soaked in already.

Perhaps at this time one or two of our Game Protectors show up. They are invited to speak to the group, and they make it brief, for they realize the tightness of our schedule. Whether or not they appear, we spend a few words in explaining the purpose of game laws and the necessity for reading the syllabus carefully. The Game Protector is working for all of us, we point out, and the landowner can be our friend too, if we're considerate.

We touch on the matter of sportsmanship. Hunting is for fun, not for groceries. It's a sport, but never should it be competitive. In a sense, bag limits mark the place where the hog has to stop, and even a gameless day in the open ought to be happy.

Yet game given a fair chance and then killed cleanly is a naturally desired fulfilment of the hunting day. So we stress the idea of doing the best with the first shot, often the only one that's offered. If there's no time for that one careful shot it's best not to fire at all. But generally there is time enough. Were a boy to spend his first day afield with a gun and no ammunition, merely aiming and snapping at the game he saw, he'd find that out!

That's too much to expect, but we explain why over-anxiety is a two-edged fault. It chops down our efficiency and also cuts our caution to below the danger point. *Mistaken for game* causes so many hunting accidents that we outline a few examples. Some are so nearly unbelievable that they'd be laughable if they weren't tragic. But under certain conditions a glimpse of a person can suggest almost any kind of game. So the color of hunting clothes is important, we explain, and thick brush is no place to be in when working heavily hunted country. Even a watching post on a hilltop can be dangerous; it's safer to stand in front of a tree or rock so that your moving silhouette won't invite a bullet.

These kids, you know, are getting a saner start than most of the preceding generations ever received. They set a good example in the hunting field, and we who teach them become more safety-conscious than ever.

It never does to let these youngsters become restless, well-mannered 'though they are at these sessions. Demonstrations come next, and they put them on. Each one, as his name is called, steps out and returns with his gun. Most of them own their guns and we *assume* that all of them do. A kid can be sensitive about such matters.

Here they get another reminder of *Watch that muzzle*, if they need it, from us or from the others. The candidate must name the make and caliber or gauge of his gun, and show its operation. Fay and I make comments, mentioning the best points of each weapon. Sometimes a youngster will be self-conscious, bringing in a beat-up old single-barrel shotgun or a .22 of obsolete vintage—a poor showing against the doubles, repeaters and semi-automatics of which the others are so proud. Then he gets comment such as "Lots of game falls to single-shots, and that kind of gun makes you a good, careful hunter." Or "That was a great rifle in its day, and it still is." If it ever happened that we saw a specimen that was doubtful for use with modern ammunition we'd tell the kid so, offstage.

Occasionally we interrupt the program with a brief demonstration of how to set a gun down safely in the woods when you're talking or having lunch, what to do with it when you cross a fence or jump a brook, and so on. Any possible hazards of a certain type of gun action get pointed out, too.

Then comes the time for the last formal instruction, and the place we use for it is outdoors. If we gave this course in town we'd use a rifle range, existing, or safely improvised.

In small groups our pupils are shown how to cross our little ten-foot section of fence, knocked together for just this purpose, how to get themselves and their guns into and out of a car or boat, and how to walk abreast as in covering a field or woodlot, each one bound to keep to his own line of fire if game gets up. They do handle their guns rather awkwardly, most of them, in their anxiety to do everything just right. Our thoughts go far back to the time before our own safety habits had become easy and unregarded, ingrained as second nature.

They have waited a long time (or so it must seem to them) for the chance to do some shooting, but the targets we set up aren't difficult. What we want to see is the way in which they load, operate the safety catch or hammer, and fire. More than this, each youngster sometime during his turn is interrupted by the sudden command, "Hold it!" Then he is directed to unload, safely, before he again gets the chance to fire.

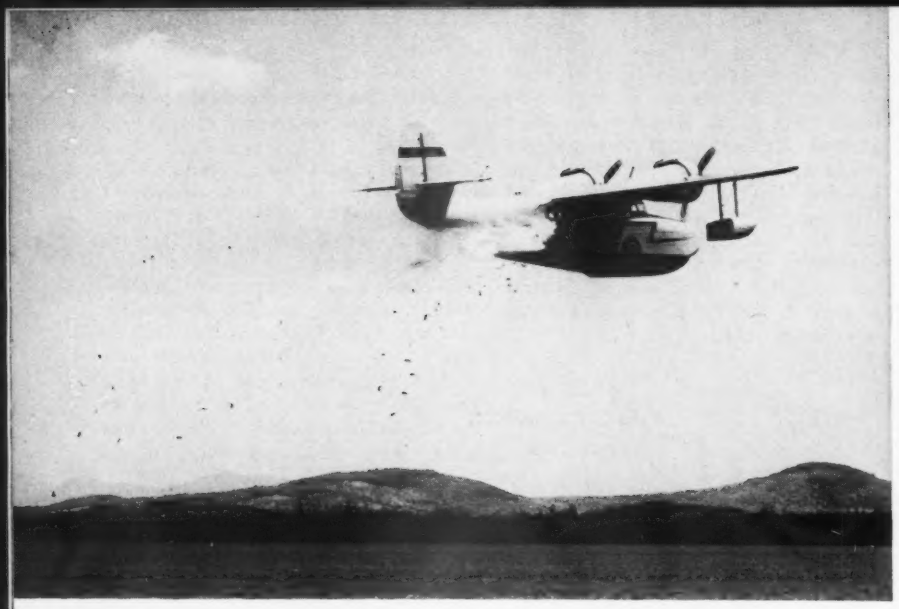
Unless we have as few as three or four students we make the final exam a written one. We believe strongly in this method, for after the period of frowning, pencil-chewing, and scribbling is over we like to explain to each one just what he missed—and also to point out in what ways he was so soundly right. Both reinforce the memory.

Here too is the time for little reminders, good for all to hear, for the tap-tap-tap style of teaching does get results with most teenagers. And with some older folks, too.

Rarely do we have to fail a candidate. If we do, we try not to let the others know. We remind the kids that people will be watching them, and when we tell them that many experienced hunters will learn from them they think it's a joke. But we assure them that it's so, and it is.

By now it's noon, and time for dismissal and the "Good hunting!" wish, which is hearty and sincere. Sometimes in later weeks we meet one or more of these kids afield. We stop and talk, and they are muzzle-conscious, so much so that we cannot help think of more experienced but less careful hunters whose trails have crossed ours.

FAY and I prepare to go our ways. It's been a good Saturday morning, worth spending so, and only he and I and the others who do this job for our State know the depth of satisfaction we reach in it. We are amused at those who express surprise that we aren't paid for it—paid in money, that is!



Trout From Heaven

WE arrived at the Saranac Lake airport about noon on Tuesday, October 5th, to find everything ready but the weather. The weather was a disappointment; the tops of Marcy and Whiteface were in the clouds, and there was a good deal of low scud blowing around. But Pilot Fred McLane said he had plenty of ceiling to get into St. Regis Pond, and the Department's Grumman Goose amphibian was on the runway loaded with fish, and all the men were ready to go. In fact, they had already made a couple of plantings earlier in the day.

Before climbing aboard, we had a quick look at the Goose. Externally it was the same as ever except that its starboard door had been taken off. But inside, the transformation was almost complete. All the seats except those for the Pilot and Co-Pilot had been taken out, and in their place on each side of the cabin were two aluminum tanks 4 feet long, 18 inches wide and 3 feet high. They were about a third filled with water, and in them was a total of 12,600 fall fingerling brook trout averaging a little less than 4 inches in length. At the rear of the 'plane, where the starboard door had been taken off, was mounted "the fish planting device"—something that looks like a square milk can with a sort of funnel attached, the whole business being hinged on the side of the 'plane so that at just the right moment it can be up-ended and the fish dumped over the side. In addition, the floor of the cabin was littered with scap nets and other equipment essential to the operation, including tubes from the oxygen cylinders which continuously pumped oxygen into the fish tanks.

The conversion of the interior of the Goose is not as complicated and doesn't take as long as one might suppose. The 'plane is equipped with quick release fasteners into which any one of the 24 categories of equipment—such as ambulance equipment, cargo tiedown devices, cargo parachute dropping devices, etc.—can be fitted very quickly. The conversion from passenger 'plane to fish planting carrier can be made in less than 30 minutes.

Before taking off, we had to make a few arrangements as to how this expedition would be reported both from the air and from the ground. The ground staff consisted of Bob Zilliox, head of our Adirondack Fisheries District, who would act as guide and counsellor for our photographer, Nick Drahos. They would drive as far as possible, and then walk the rest of the way into St. Regis Pond. The 'plane would circle the pond a couple of times to get everybody oriented, and then would drop in for the fish planting runs.

As we took off in the 'plane, it was obvious why the fish tanks in the cabin were only a third filled with water; as the 'plane gathered momentum on the runway, fish and water sloshed back in the tanks almost to the overflowing point, but the figuring had been good and there was no loss. Although it took Zilliox and Drahos something over an hour to make their way into the pond, we had been airborne only five minutes when Pilot McLane shouted back into the cabin: "Here we are." That was the signal for Charley Deuel, Hatchery Foreman in the Co-Pilot's seat, to alert Harold Hurley and Arthur Martin in the rear of the 'plane. They grabbed their scap nets and started dipping fish out of the aluminum tanks and into the fish planting device mounted at the rear door. Hundreds of trout came out with every scap of the net, and the fish planter was loaded to capacity as we started to circle St. Regis Pond. Sure enough, there was Bob Zilliox standing on the shore of a small island (opposite the place where we had agreed to drop the fish) and in the water up to his neck was Drahos, waving his Speed Graphic.

We made another circle of the pond and then straightened out for the drop. Pilot McLane throttled back and the 'plane dipped down over the hills toward the water. Air speed, 100 mph; no flaps used (because of possible necessity for a quick emergency getaway); altitude above the water, 90 feet. McLane yelled back into the cabin: "Stand by," and Hurley and Martin grabbed the fish planting device and tipped it up on its hinges, ready for the drop.

Just before we came opposite the point of the island on which Zilliox and Drahos were stationed, McLane shouted: "Now"—and upside down went the fish planting device. Hundreds of trout were dumped into the air and spun down into the water.

We made four planting runs altogether

Summary of Adirondack Airplane Stocking, 1947-1954

Year	No. Ponds	Number	Weight	No. Trips
1947	19	34,200	432.1	3
1948	28	71,800	1088.5	4
1949	38	79,300	1369.0	5
1950	55	170,350	2067.3	9
1951	53	154,000	2424.0	10
1952	89	180,000	5558.5	23
1953	88	208,690	6001.2	27
1954*	114	231,485	6314.3	30

* (Includes lake trout planted in Lake Ontario)

In addition, Hamilton County planted 47,000 brook trout and 500 rainbows in 50 ponds in Hamilton County

FROM HATCHERY TO 'PLANE: Fish are trucked to the airport according to precise schedule, then transferred to oxygen-fed tanks in 'plane

before the last trout in the starboard tank was dropped to his new home. Then we landed on the lake, and the remaining fish were scapped over the side.

ST. REGIS was just one of the 114 ponds in the Adirondacks stocked by air during the past year. These ponds, located in six Adirondack counties, have a total acreage of 7,553, into which were dumped 211,485 trout. Nine of the ponds were stocked in the spring, 104 in the fall; spring plantings covered 1,864 acres of water, fall plantings 5,689; spring plantings accounted for 18,825 fish, fall plantings for 192,660. Thirty individual flights were required.

The table which accompanies this article clearly indicates that there is nothing new about the aerial stocking of trout in New York; original experiments were made in 1938, and actual stocking has been in progress since 1947. But before the 'plane takes off with a load of fish, a great deal of thinking and planning has to be done.

This basic work begins with biological surveys of the waters considered for stocking: Information as to water temperatures, chemical conditions, food supply, fertility, presence of competing species, reproduction potential for various species of fish—all of these factors must be carefully weighed before a decision is made as to whether the individual water concerned should be stocked, and if so, with what species of trout, how many, and how big.

With these decisions made, a list of the waters to be planted, with the recommended species of trout, the number and size, is submitted well in advance of the actual stocking to the Hatchery Foreman who will have to supply the fish. The Foreman is informed of the "target date" on which it is proposed to start the operation. Then all of the waters to be stocked are systematically listed so that a maximum safe load—safe both for the airplane and for the fish—can be carried on each trip. (As many as 15 ponds may be stocked on a single flight.) That involves a close study of USGS sheets so that there will be the greatest possible efficiency in proceeding from the stocking of one pond to another.

Two days before the "target date," a starvation diet goes into effect at the hatchery which will provide the fish. It has been proved that trout without food for two days prior to the actual stocking are best fitted to withstand the sudden changes in their environment. Along with these preparations, teams of hatchery men are organized to take care of the weighing, loading and transferring of the fish from hatchery to airport.

Evidently, fall stocking by air is favored by the Department, and fall fingerlings averaging 3¼ inches in size are usually what is available at that time as stocking material. In general, water temperatures are more suitable for survival of fish in the fall than at other times, although some spring stocking of larger fish, to provide immediate fishing, is done as the occasion demands.

The principal advantages of stocking by 'plane are these: (1) Such stocking is often the only practical method of getting fish to remote waters; (2) the fish arrive in much better condition than if they had been handled the old way—shank's mare and pack cans; (3) use of the 'plane makes it possible to stock many ponds in a short time, and tests on survival of the fish indicate that aerial stocking is more satisfactory than any other method—in spite of the hundred foot drop from 'plane to water, nets placed

FROM 'PLANE TO POND: As 'plane reaches target area, trout are dumped into air from planting tank—or scooped out if landing is possible

under the drop have revealed an amazingly small percentage of kill; (4) stocking by 'plane is a sure method of carrying out a preconceived stocking policy—it is known exactly how many fish will be dropped, and where; and (5), airplane stocking obviously eliminates many of the principal hazards in stocking by other methods, since airplane transportation provides the most direct route and the shortest elapsed time between hatchery and the water to be planted. Quite a saving of the sportsman's dollar.

But in spite of all the short-cuts and economies which 'plane stocking makes possible, no one should think that this is anything but a hazardous operation. Low flying, especially in the Adirondacks, is always dangerous; any Pilot knows that in mountainous country he will be subject to down drafts and unpredictable weather conditions that could get him into plenty of trouble. Furthermore, in our own stocking operations, the gas load of the 'plane is reduced so that the Pilot has a fuel reserve cut down to the minimum compatible with safety, so as to permit a greater pay load of fish. And then again, in stocking small Adirondack ponds the approaches and possible avenues of escape in the event of trouble must be studied very carefully before the operation gets under way. The same holds for wind direction and velocity, terrain, and the general character of the air. It is interesting to note that three of the ponds recommended for aerial stocking this past year were crossed off the list because of objections raised by the Pilot.

The success of trout stocking by air has been carefully checked by various observations made after the drop has been completed. (After our St. Regis operation, for example, Zilliox and Drahos made a careful survey of the area where the fish had been dumped, and didn't find a single dead or injured fish.) The highest mortality record to date was 26 fish killed out of a total of 5,000 dropped.

Most records are even better. In 1953, 2,500 3-inch brook trout were planted in Lake Colden and the same number in the Flowed Lands, a lake adjacent to Colden. These waters were planted in rapid succession, and immediately after the plants Chet Rafferty, Forest Ranger at Lake Colden, spent about 20 minutes in a rowboat at the spot where the fish were dumped. He found none dead or injured.

AS indicated above, New York trout ponds received 211,485 airborne migrants last October. Leaving the airport after our flight to St. Regis Pond, Pilot McLane expressed the doubt that any other Pilot had carried as many passengers anywhere in the world during that month.

—P. W. FOSBURGH

PONDS (1)—Where to

WE doubt if any single factor in recent years has been more influential in changing the State's rural scene than the widespread construction of farm ponds. Over the past ten years country people in New York have built more than 4,945 ponds—and the pace is increasing.

Despite publication of several "farm pond" articles in previous issues of THE CONSERVATIONIST (re-prints of which are available), we herewith begin a new "pond" series. We begin at the beginning: Where to build your pond. Subsequent articles will deal with figuring the cost, and where to turn for help in planning and constructing your pond.

But cost should be mentioned right here and now, for there is much misinformation available as to where ponds can be safely built without spending a fortune. We assume you're economy-minded. So before you dash out and enlist the aid of the nearest bulldozer operator, let's take another look at your place and see what you have on your property in the way of a suitable location for a man-made pond.

While you're making this inspection, consider your principal reasons for wanting a pond. Are you interested solely in an auxiliary reservoir to fight a possible fire? Do you need extra water for your stock? Are you interested in creating an attractive new home for wild ducks, furbearers and upland game? Do you want a summer swimming hole, or a winter skating rink? Are you planning on your own trout fishing pond—or maybe a profitable bait minnow project? Or do you just want a pond to look at? Or are you, like most New York pond builders, hoping to combine as many of these features as possible in a single pond?

The multiple-purpose pond, we believe, offers the most advantages for the least money invested. Here in New York this objective, for the average pond site, is best met by construction of an all-earthen dam with a vegetated emergency spillway and other accessory features such as a water control structure and outlet pipe to handle normal water run-off. A standard design has been developed for this type of water impounding structure (see sketch) which is adaptable to most situations that can reasonably be considered. It is a design suggested by the U. S. Soil Conservation Service for most farm ponds, and is used by the New York State Conservation Department for its wildlife ponds.

But where to place such a dam? Farm ponds come in three models, dependent on source of water supply: The spring-fed, the surface run-off, and the by-pass. A spring-fed pond is best located at the headwaters of a small spring stream and can be supplemented by water run-off from a small watershed. A surface run-off pond depends mostly on the run-off from a watershed; it will provide warmer water and is subject to greater fluctuation than the spring-fed pond. A by-pass pond is fed by water diverted from a constant flowing stream. This type assures you of a continuous supply of water but usually requires a more costly and more complicated design.

Generally, a low flat area that is naturally wet or swampy, draining between two banks close together, is a natural for pond development and should be considered first. Such spots are usually found at the headwaters of small spring streams, or at the headwaters of small drainages that may be dry during part of the year.

No matter how tempting the site may appear, avoid considering the damming of streams that run year 'round or drain large watersheds — unless you want to spend a lot of money and become involved in a major engineering project. The countryside is dotted with the failures of people who have tried this type of site without first securing professional engineering advice. A constant running stream is a good indication that it has a large watershed and that the murmuring brook of the summertime will be a raging torrent for at least a few days in the spring. And your dam, remember, must be planned and built to handle the *maximum* flow of water.

You should have a few inexpensive tools at hand when you attempt to locate a spot that looks like a good possibility. Number one item is a topographic map of the area which includes your property and some distance around it. If you don't have such a map write to the U. S. Geological Survey, Dept. of Interior, Washington, D.C. and request the free USGS Index Map of your State. Determine from this index the USGS quadrangle or quadrangles that cover your general area, and then order them from the same address. The price for each quadrangle is 20¢ and usually one map will do the trick. (Sometimes these quadrangles are available at slightly higher cost at local Army-Navy, sporting goods or book stores, and it might save some time to investigate these sources first.) Quadrangles normally come in two scales — the 15′ series and the 7½′ series. The 7½′ series is the larger scale and the better one to use if available for your locality.

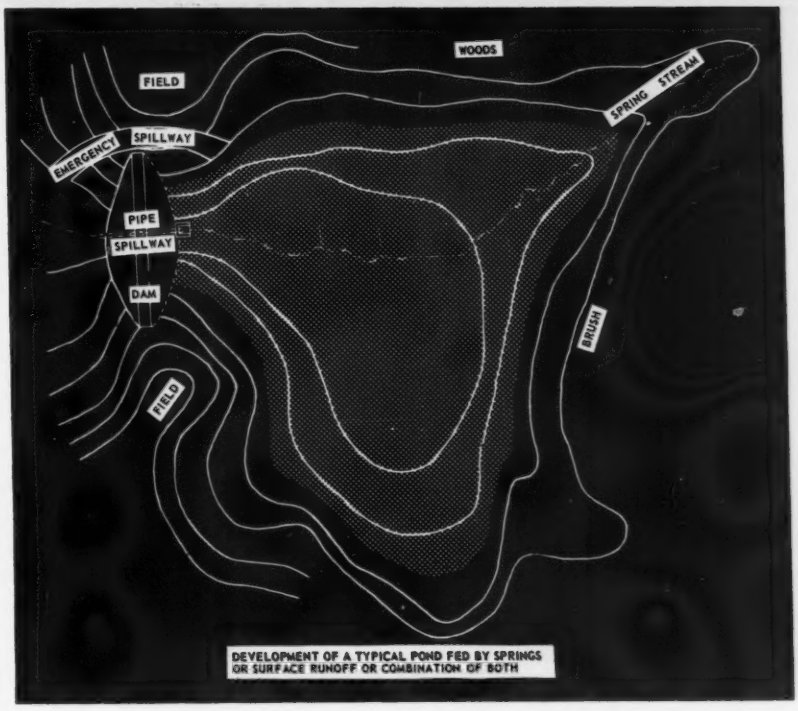
o Build Them

Another handy gadget to have is an inexpensive hand sighting level which can be obtained from Army-Navy stores for about $2.50. More expensive models are available but not necessary. The only other tools you will need are a soil auger and an axe. The chances are you won't have an auger and, if you can't borrow one, a shovel can be substituted—but it will involve more work.

Equipped with these aids you can pretty well decide for yourself whether or not you have a practical spot for a pond on your property. First mark the exact location of your pond site on the map. With the assistance of someone familiar with the use of this kind of map (or even without it) you can figure how many acres of land will provide run-off water for the pond. You should do this, because even 'though springs may be the main source of water, the surface drainage must be considered. If you have the 7½′ map, ¼ square inch on the map represents 10 acres on the ground. If you have the 15′ map ¼ square inch represents 40 acres on the ground.

Certain definite relationships have been established between drainage areas, ground cover and pond sizes. A pond one acre in size should not have a drainage area in excess of 40 acres if the ground cover is all woods or brush, 30 acres if pasture, or 20 acres if cultivated. A combination of these can be prorated, but in any case the larger the pond the more drainage area it can safely handle. To keep down the costs of materials and construction, however, ratios in excess of those mentioned above are to be avoided. As the size of the drainage area increases, so does the size of pipe, emergency spillway and also the cost of a properly designed and constructed pond. You can see from the above figures that the average pond of between one and two acres should have watersheds of somewhat less than 80 acres.

Next step: Stand about where you think the dam should be and take a look over the proposed pond area with the hand level. All you are doing is projecting a line of sight from your eye level. This height, for the average man, is about 5½ feet from the ground—so you can figure approximately to what points a 5½ foot dam would back up water. Here you may need the axe to cut brush so that you can better see potential flow lines. Set a few stakes where your line of sight strikes the ground to give an idea of the pond outline. With a series of measurements to secure average width and length, you can now figure the approximate size a pond would be with a dam of that height. Remember that one acre comprises 43,560 square feet. Using the same procedure, you can figure what the results would be using a higher or lower dam. Depending upon the soil types present, you can further deepen the pond by excavation while the dam is being constructed.



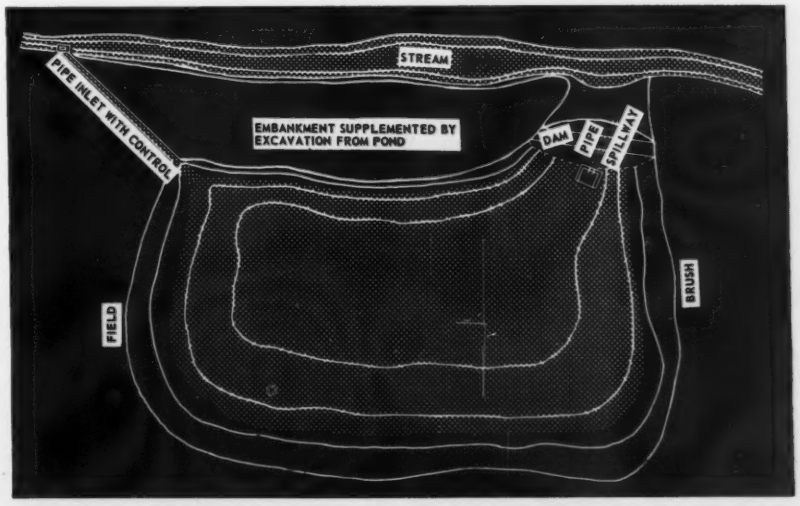
DEVELOPMENT OF A TYPICAL POND FED BY SPRINGS OR SURFACE RUNOFF OR COMBINATION OF BOTH

Which brings up the vital subject of soil types at the site of your pond. If the watershed and proposed pond area appear favorable, you should now bore or dig enough test holes to see what kind of soils you have for the pond bottom and dam material. These test holes should be dug where you think the dam and emergency spillway will be located, and also at random over the pond area, especialy where it is planned to excavate. The deeper you plan on excavating, the deeper you will have to bore or dig to see what you have. Deep heavy soil that has lots of clay in it is best. But if the soil is sand or gravel, or if rock or shale outcrops are near the surface, you might better look elsewhere because there is a good chance that a pond built on these soils will not hold water.

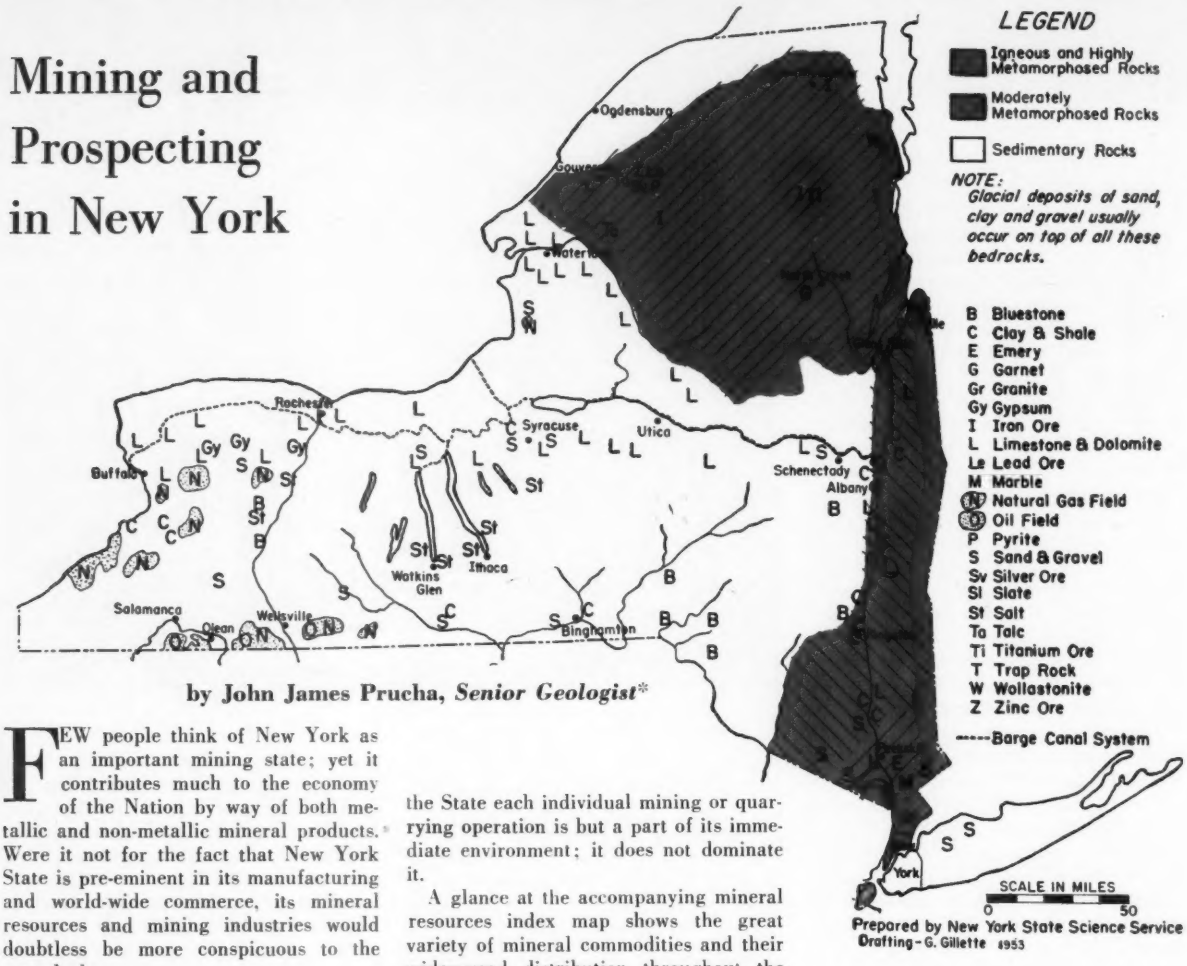
If your poposed pond site passes all three tests—suitable watershed, pond area and soils—you can feel reasonably sure that you have the basic requirements for a good pond and are ready to look for some assistance in getting it properly developed. More about that next issue.

—Roy Irving

Pond fed by by-pass from main stream



Mining and Prospecting in New York



by John James Prucha, *Senior Geologist

FEW people think of New York as an important mining state; yet it contributes much to the economy of the Nation by way of both metallic and non-metallic mineral products. Were it not for the fact that New York State is pre-eminent in its manufacturing and world-wide commerce, its mineral resources and mining industries would doubtless be more conspicuous to the casual observer.

To those of us directly concerned with the mineral deposits of the State it is frequently surprising to observe the astonishment with which our neighbors from both the metropolitan areas and the hinterlands learn that New York State is an important producer of iron ore, or that it is the leading source of garnet and industrial talc. And who would suspect that New York State contains the world's biggest titanium mine, the Nation's third most productive zinc mine, and the only commerical deposit of wollastonite in the world!

Perhaps one of the reasons that the economic importance of the State's mineral industries is so little appreciated by the general public is that most individual operations blend so well with their environment. The dingy towns of the Eastern coal districts and the desolate mining camps of the West find no counterpart in New York State. Mining communities even in the remotest parts of the Adirondacks look more like vacation colonies than they do like conventional mining towns. And in other sections of the State each individual mining or quarrying operation is but a part of its immediate environment; it does not dominate it.

A glance at the accompanying mineral resources index map shows the great variety of mineral commodities and their widespread distribution throughout the State. With the exception of sand and gravel, most of the commodities tend to be grouped together within well-defined areas, or are restricted to certain broad regions of the State. For example, all of the metallic ores occur within the Adirondack region, whereas oil and natural gas occur principally in the western and southwestern parts of the State. Similarly limestone and dolomite quarries are grouped principally in well defined belts, and salt is recovered only in the south-central and west-central regions of the State.

These natural groupings of the active mineral industries reflect closely the geology of each particular region. Since practically all mineral deposits are an integral part of the earth's crust, the nature of the underlying bed rock at any place has determined in large measure what type of mineral deposits are likely to be present. Such products as clay, sand, and gravel, however, were deposited on top of bed rock; hence, their distribution is likely to be determined by past and present drainage courses and the movements of the ancient continental ice sheets, rather than by nature of the underlying bed rock.

By nature the mining industry is a changing, dynamic business. The old law of supply and demand determines the price of any commodity, so that a mine operating on a narrow margin of profit today might well be forced to close down tomorrow if faced with reduced prices for its product. On the other hand, vastly-improved techniques of milling low-grade ores and changed market conditions commonly permit re-activation of former mines and encourage development of low-grade ore bodies. With these factors in mind, no known concentration of any mineral commodity—regardless of how low-grade it may be—can be definitely ruled out as a possible future producer. For example, few would have predicted 15 years ago that rock containing only one-tenth of one per cent uranium oxide could be sold at a profit, yet such is the case today.

How the development of new uses for a mineral commodity, coupled with advances in milling and metallurgical practices, may alter radically the economic status of a deposit is well illustrated by the case of the titanium-bearing

* Published by permission of the Director, New York State Museum and Science Service.

iron ores near Tahawus, in Essex County. For years the presence of these ores on the shores of Sanford Lake, near the headwaters of the Hudson River, was well-known, but repeated attempts to mine them were doomed to failure because of the difficult metallurgical problems resulting from the high titanium content of the ores. The mineral ilmenite, which contains the titanium, was everywhere intimately associated with the iron mineral, magnetite.

During World War II the titanium mineral that had previously prevented successful operation of the deposits for iron ore became a critical and much-wanted commodity. New milling procedures were devised to separate the titanium mineral from the iron, and today the deposit which was once practically worthless is the major source of domestic titanium.

A well-known mineral expert once expressed the view that given a large body of any relatively pure mineral aggregate, a use could be developed for it. Perhaps that is an over-statement, yet one of the most recent mining developments in the State illustrates the principle. The brand new wollastonite mine, near Willsboro, is yielding an entirely new mineral commodity for which suitable markets must be developed. Extensive experimentation indicates that wollastonite (a white lime-silicate mineral) may be used for some of the same purposes as New York talc, and in addition shows promise as a raw material in ceramic boards, insulating blocks, and various types of white pigments.

These examples simply emphasize the changing, dynamic nature of the mining business and demonstrate that the industry in New York State possesses considerable vigor and vitality. Continuing exploration and prospecting activity are the best assurance that this healthy condition will be maintained.

Geologists are constantly developing and testing new hypotheses of ore formation. That explains why year after year they come in groups and as individuals to restudy and prospect areas which have been turned down by earlier ore-hunters. In the Adirondacks at the present time at least one major mining company is mapping and drilling in areas formerly rejected by competitors in the hope that its hypotheses of ore formation may lead to the discovery of wholly new deposits.

Such programs take a good deal of courage, money, and imagination. But the modern exploration geologist is not expected to go ahead with these aids alone; he is constantly improving his chances through the use of new and effective geophysical instruments which probe the hidden parts of the earth's crust.

A splendid illustration is seen in the war-time development of the giant magnetic iron ore deposit at Benson Mines, near Star Lake. Although some ore had been known at the locality for many years, it was not until the airborne magnetometer—a magnetic device invented during the war to detect submerged submarines—was towed behind an airplane over the area that the magnitude of the ore body was even suspected. Today, not much more than a decade later, Benson Mines is the biggest open pit magnetite mine in the world.

Recent filing of discovery notices, or mineral claims, by uranium prospectors on State-owned lands near Bear Mountain Bridge and in Fahnestock State Park has focussed attention on the possibility of there being undeveloped and undiscovered mineral deposits within many of the State parks and forest lands. Of course, exploitation of natural resources within the vast Adirondack and Catskill Forest Preserves is prohibited by the State's constitution, although in the opinion of the writer there would seem to be no objection to the use of Geiger counters, dip needles or other instruments which would not disturb the surface of the earth or the plants growing on it.

But what are the chances of there being valuable mineral deposits on State-owned lands outside the restricted Forest Preserves? The odds in favor of finding a valuable mineral deposit in any given parcel of land are always small, even in regions of known mineralization; for such is the vagarious nature of ore bodies. Yet it is surely true that ores are no respecters of arbitrary man-made property lines! In any part of the State the chances of finding valuable mineral deposits on State-owned lands are every bit as good as they are on adjacent private lands having the same geologic characteristics, however long those chances may be. Obviously it is not true, as some prospectors seem to believe, that there is some inherent quality of State-owned lands which makes them more susceptible to mineralization than adjacent private lands.

Perhaps it might be well to point out that the presence of a mineral commodity in considerable quantities at a given place does not necessarily mean that a profitable ore body can be developed. In the strict sense, no mineral deposit can be considered an ore body unless it can mined and sold at a profit. Demand for the product, nearness to markets, available transportation, and mining characteristics of the commodity determine whether or not a mineral deposit can be considered an ore deposit. These factors are particularly important in considering commodities characterized by large bulk and relatively low unit-value, such as limestone, gypsum, salt, clay, shale, and bluestone. Surely no prospector would be in a hurry to file claims on State lands known to be underlain by high-grade limestone, for example, if the economic factors mentioned are not favorable.

Prospectors intent on probing the earth's crust for hidden mineral wealth in New York State would do well to remember that optimism and energy are seldom enough to produce good results. A knowledge of the fundamental principles of ore formation and mineral economics are essential, and certainly a good understanding of the geology of the State is a pre-requisite. It should be remembered, too, that the mere filing of a discovery notice, or claim, is no proof that an ore body exists at that place, irrespective of how much publicity such legal procedures may stir up. Diligent use of scientific methods and principles is the only course recommended to professional geologists and amateur prospectors alike.

Mining Laws of New York

by Percy Lieberman, *Department of Law*

THE intended scope of this article is to outline legal procedure with respect to the filing of mining claims on State-owned lands. Recent discoveries of uranium in this State have stimulated interest in mining, particularly with respect to State-owned lands, and news of great uranium discoveries in other states has induced the gullible to subscribe to a variety of get-rich-quick schemes. The writer has been in the thick of much of the activity relating to exploration and mining on State-owned lands. I shall also, there-

fore, attempt to point to the dangers and pitfalls of charging forward with a Geiger counter like a modern Don Quixote.

Many otherwise well-informed people are under the impression that anyone "staking a claim" on State-owned lands may immediately start exploring and mining operations. That idea is completely out of line with the facts. It would be a sad state of affairs indeed were it possible for private interest to exploit lands acquired and developed by the State, in most instances at great cost. True, the so-called Mining Law (Art. 7, Public Lands Law) does permit any citizen of the United States to file a notice of discovery in the office of the Secretary of State (§ 82, Public Lands Law) upon payment of a filing fee of $25 for each claim, and submission of survey maps, descriptions and other data usually requiring the services of a lawyer and a civil engineer. Incidentally, any number of claims (designated in the statute as notices of discovery) may be filed. Each such claim, however, may not exceed 40 acres in area.

What are the rights of a person who files a claim affecting State lands? Such a person, referred to in the law as the "filer," has the exclusive right to apply to the State through the Board of Commissioners of the Land Office for permission to explore and/or mine. He has no right to proceed unless and until such permission is granted.

Please note the word "exclusive." It may interest you to know that this exclusive characteristic of the rights of the filer was one of the principal reasons for a complete revision of the Mining Law in 1945. The law prior to that time placed no limit on the area covered by the claim, nor did it require the filer to make expenditures in exploration and mining operations. In short, he could file his claim, do nothing about working it—and still bar his fellow citizens from possible exploration and mining on such lands. Hundreds of such claims, in some instances dating back to the Gay Nineties, were on file in the office of the Secretary of State. Some covered several townships. The situation was, of course, intolerable, and so the Legislature enacted provisions remedying these matters.

After the enactment of the revised law, hundreds of claims on file in the Secretary of State's office for many years were terminated for failure to meet its requirements. In each of these matters notice was served on interested parties advising them that they could if they wished have a hearing before the Secretary of State, and several such hearings were held. In many of these matters serious and complex questions of law arose, but there were also some humorous incidents.

There was, for example, the filer who claimed that his notice of discovery covered lands under the Sacandaga dam. He appeared before the Secretary of State with the rather appealing argument that the State of New York required him under the Mining Law to make certain mining expenditures on lands which the State itself had inundated to a depth of 30 or more feet. (It also appeared, however, that a quarter of a century had elapsed since the notice of discovery was filed, and that the filer had plenty of time prior to the advent of the dam without engaging in any mining activity of any kind.)

More recently, an enterprising uranium hunter filed on lands in the Camp Smith Military Reservation. This is a military camp having an exceedingly limited area available for its purposes. It plays a vital part in the training of personnel in the New York National Guard and certain army and naval reserve units. A question arose as to how this prospector got on the land to find the mineral in the first instance. His story is interesting, with an element of youthful romance. It seems that many years ago he took a camera shot of a young lady while picnicking in the area. He found that the negative of the film had been ruined by radiation of some mysterious nature. When many years later he became interested in prospecting for uranium, he thought of the spoiled film and got busy in the same area with a Geiger counter.

BEFORE discussing the revised law, let's consider for a moment the Board of Commissioners of the Land Office, usually called the Land Board. How does it operate and what are the chances of obtaining the approval of that Board to seek fame and fortune in the public domain? To take an extreme case, let's assume that the filer has found evidence of uranium in the grounds of the State Capitol at Albany. Would the Land Board approve a request for a permit to explore and mine? What do you think? And for that matter, as a taxpayer, how would you rule on such an application?

Let me hasten to assure you that the Land Board is composed of men who take seriously their duties as guardians of the real estate owned by the taxpayers. The Board consists of the Secretary of State, who is Chairman, the Superintendent of Public Works and the Attorney General, who is also legal adviser to the Board. These men are assisted by a staff of experts. Before one can get to the Board, the application is minutely screened by these experts. The applicant is usually required to appear before them as a preliminary to the hearing before the Land Board. When, as you can see, the Land Board is ready to hear the applicant, it has before it a detailed report prepared by its staff.

At this point let us interrupt our hypothetical application before the Land Board and consider the situation generally with respect to mining on State lands. The Mining Law is an ancient law enacted when the State was young, when vast sections were undeveloped. The exploration and development of these lands were then a matter to be encouraged. It is still the policy of this State to encourage mining activities. However, the situation with respect to State-owned land has been drastically changed. In this connection, it should also be remembered that two great sections of the State, the Adirondack and Catskill Forest Preserves, are subject to a constitutional mandate prohibiting their exploitation. These lands must be forever kept as wild forest lands (N. Y. S. Const., Art. XIV, § 1). Since those early days the State itself, by reason of greatly expanded activities, has developed and is utilizing much of its lands. We now have many hospitals, State colleges, schools, prisons, correctional institutions, game refuge areas, reforestation areas and State parks and parkways. These lands have, of course, been improved by the State at great cost. There is no doubt that the Legislature in enacting the Mining Law did not intend to jeopardize this tremendous investment in the health and welfare of its citizens.

Now let's proceed with the application before the Land Board. Of course, mining operations on the grounds of our State Capitol present a rather extreme case. We shall assume, therefore, that the proposed mining activities affect lands not utilized for other purposes and will not interfere with any future use of such lands by the State. The application is considered favorably. The law (§ 81, subd. 2, Public Lands Law) states that the Land Board may issue a permit to enter upon State lands for the purpose of exploring for mines and minerals upon such terms and conditions as the Board shall determine. I shall not burden you with legal details relating to the provisions of such a permit, which is prepared by the Attorney General and specifies the terms and conditions adopted by the Land Board. You should know, however, that such matters as the assumption of all liability and insurance covering such liability are usually required. In a recent case, the applicant was required to provide insurance or surety bond coverage in an aggregate of $2,000,000. Complete and detailed supervision by the State Geologist is provided for, and many other matters are covered in such a document.

Now, however, you are ready to proceed. Again the law must be considered carefully. Section 84 of the Public Lands Law as revised in 1945 provides that all right to explore for or extract minerals on State-owned lands shall expire at the end of thirty months from the date of the filing of notice of discovery unless the sum of $250 shall be expended in these operations for each claim in each of the first two years of said thirty-month period. The law (§ 82, subd. 4, Public Lands Law) also requires the payment of a royalty of 2 per cent of the market value of all minerals extracted. The filer must also make periodic reports to the State Geologist. Subdivision 4 of § 84 of the Mining Law provides for the termination of mining rights at the end of the thirty-month period should the filer fail to comply with the requirements of the law. In that event, provision is made for a hearing before the Secretary of State with respect to such failure to comply.

Up to this point I have discussed exploration and mining on State lands on the assumption that the minerals discovered in said lands are owned by the State. This may not be the case. Title to mineral rights very often is acquired and transferred separate and apart from title to the land in which the minerals are found. So it is possible that minerals discovered on State lands may not be owned by the State. Gold and silver, of course, must be considered in a class by themselves. This is so by reason of the fact that all of the original grants of land made by the King of England and later by the State reserved all gold and silver. The reservation of gold and silver by the State is also mandated by statute. (Sec. 5, Public Lands Law) The State as a result claims ownership of all gold and silver deposits, whether found in State-owned or privately-owned property. But let's not concern ourselves with gold and silver; experts say that these metals do not exist in this State in quantities that would justify the expense attendant upon their extraction from the earth.

A study of the ownership of mineral rights very often reveals the early history of the section of the State in which such minerals are found. Such is the case in Putnam County. Land titles in that County were seriously impaired by a highly involved title complication. Practically all of the land titles in Putnam County originated in a royal grant to one Adolph Phillipse made on June 17, 1697. Subsequently, the heirs of Adolph Phillipse became the owners of these lands. The mines and minerals, however, were conveyed to certain of the heirs separate and apart from the land. Certain heirs of Adolph Phillipse, who it was thought owned an undivided one-third interest in the minerals, cast their lots with the British during the Revolutionary War (they no doubt felt that the King had been quite generous to Grandpa Phillipse in presenting him with a whole county). By Chapter 25 of the Laws of 1779, these heirs were "attainted of treason" and their lands were confiscated by the State. Later the State by warranty deeds conveyed the confiscated lands to various persons. Unfortunately, by reason of the terms of an anti-nuptial agreement, it was found that the undivided one-third interest in the minerals had never been owned by the treasonous heirs. The persons to whom the State had conveyed these lands felt that the State was morally obligated to clear their titles.

This was somewhat of a cause celebré at the time and great pressure was brought to bear on the State, resulting in legislation authorizing the Land Board to take steps to relieve the land owners. Incidentally, this legislation was introduced by a young man referred to by the newspapers at the time as "Senator Roosevelt, a Democrat." The good people of Putnam County at the time would have been surprised to know that he would later be identified throughout the world as "F. D. R."

IT is expected that the Legislature will be asked to revise the Mining Law at this session. This revision will be designed to clarify the law, protect developed State lands from private exploitation, and permit the Land Board to adopt a scale of royalties which will be in line with well-established practices in this field.

In this regard, if I may digress, it has been a heartwarming experience for the writer to observe the concern and zeal displayed by State officials charged with control and management of State lands in resisting the commercial exploitation of such lands. There is a wide divergence of opinion as between such officials and those whose responsibility is the development and use of the State's natural resources. It must, of course, be recognized that in dealing with the production of uranium, the State may have to re-evaluate its policies—but this will in the final analysis depend upon the extent of the deposits found and commercial feasibility of extracting and transporting them. In short, we do not have the facts as yet and until these are available, it will be difficult to establish procedural policies.

It may be of interest to note a recent ruling of the Land Board. The Board has advised that explorations for uranium or uranium derivatives by Geiger counter or other instruments which would entail no disturbance of the surface of the ground may be conducted after permission to do so is obtained from the State agency having jurisdiction over such lands. Consent of the Land Board in such a case will not be required. Where the surface of the earth is to be disturbed, application must still be made to the Land Board in accordance with the provisions of law. Such application must state in detail the type of operation to be performed, and the area applied for should be limited to a reasonable extent.

X-Rays in Wildlife

IN 1895 Wilhelm Konrad Roentgen discovered the type of radiation known as X-rays and prophesied their value in medicine and industry. But this discovery also gave the wildlife biologist a fine tool, the magic sight which enabled him to look into the animals he was studying. As a result, the research worker can now observe the interior of an animal at periodic intervals (without sacrificing the animal) and thus can follow some of the physiological processes which heretofore have been obscured.

X-rays are made up of many different wave lengths which penetrate and are absorbed by all substances to a greater or lesser degree, the depth of penetration and amount of absorption depending on the wave length and the density of the substance examined. The X-rays that are not absorbed by the interposed substances are recorded on X-ray film or on a fluoroscopic screen which renders visible the shadows produced by these rays. A study of these films or of the fluoroscopic screen will give the worker the information he desires.

Perhaps the greatest use of the X-ray in wildlife studies in New York (and elsewhere) has been the fluoroscopic examination of live-trapped ducks for ingested (swallowed) lead shot and for pellets resulting from gun shot wounds. (In heavily hunted areas, ducks may pick up lead shot in the process of feeding off the bottom, and lead poisoning may result.) The shadows of these shot appear as dark spots on the fluoroscopic screen. Fractures of bones can also be observed. In general this study gives the research worker information on the effect of hunting pressure on the various species of ducks, the crippling loss, and the survival of wounded and crippled ducks to the next year.

Here in New York about 1,850 live-trapped ducks comprising eight species (black, mallard, pintail, baldpate, wood-duck, readhead, lesser scaup and canvas-back) have been examined. Slightly over 14 per cent of these were found to be carrying shot pellets in their bodies. Only one duck (or .053 per cent) had ingested lead shot in the gizzard. Nine cases of fractures of wings and six of fractures of the legs have been noted. All of these had healed with no apparent effect on the bird's ability to fly or swim—which refutes the old idea that a winged bird is always a dead duck.

For comparative purposes the duck hunter's bag was also checked by fluoroscopic examination to obtain information on the location and number of shot in ducks taken by the successful hunter. In several instances of "clean" kills, no evidence of shot could be found, indicating that the bird had been shot-through. In cases in which shot was found, it was more generally in the trunk of the duck's body, whereas shot found in live-trapped ducks is usually in the neck or tail regions of the body. Moral for duck hunters: Perfect your lead and shoot only at birds well within range of your gun.

Age determination is a must in the management of any game species because it presents some idea of the annual production—and in turn gives an indication as to whether a population is increasing, holding its own, or decreasing. Here again the X-ray is important, for by using it the skeletal development can be followed by periodic examination of known-aged animals from birth (or hatching) to maturity. The long bones of the legs or wings are usually selected for such study because these bones have two areas of growth, known as epiphysis, which are generally located at the extremities of the shaft or center part of the bone, and which are areas of cartilage where growth in the length of the bone takes place. When maturity is reached growth in these regions ceases, and these areas calcify. By determining the time in weeks or months when such closure takes place, we can separate the mature animals from the juveniles in any given species. This method has been used to establish age criteria for ducks, pheasants, cottontail rabbits and foxes.

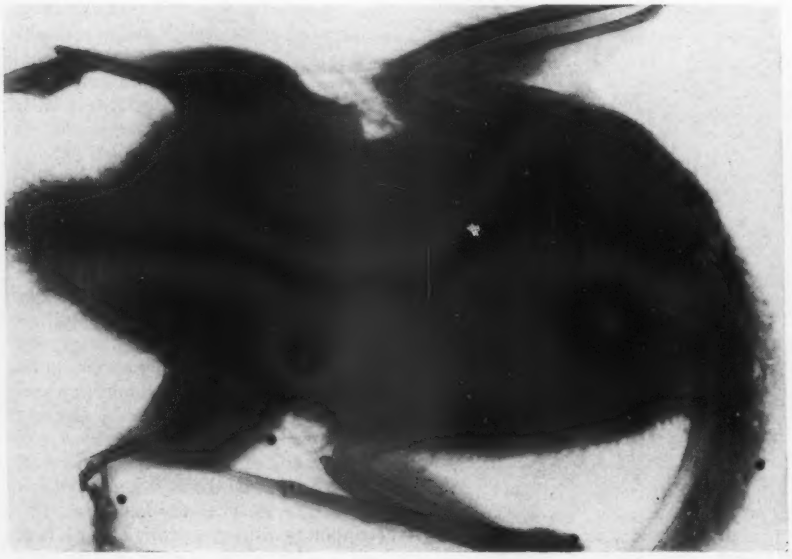
It has been found that the head of the humerus (upper bone of the wing) could be used as adequate criteria in separating ducks up to nine weeks of age from those older, and pheasants up to 11 weeks of age from their seniors. But the use of X-ray has been of no value for age determinations in subsequent age classes in either of these species because skeletal development appears to have been completed shortly after these respective ages.

A method has also been worked out for the cottontail rabbit which distinguishes between the juveniles of the year and the adults. This method is valid to mid-January for litters born in mid-March, and to May for the last litter born in late August. It has been possible to translate this method into one more suitable for use by field personnel than the continued expensive use of the X-ray machine. This consists of scraping the proximal or shoulder end of the humerus with a knife to determine whether the epiphysis is open (a juvenile) or closed (an adult).

Currently the X-ray is being employed to determine if a criteria of age determination can be developed for foxes and if possible adapt it to a more practical field method such as has been worked out for cottontails. These efforts are showing promise of success.

No doubt the wildlife pathologist will find still further and more important uses for the X-ray as his studies and experiments continue. But his debt to Wilhelm Konrad Roentgen, the inventor 60 years ago, is already great.

—JAMES R. REILLY,
Game Pathologist



Picture of a good shot. This duck, from a Hudson River hunter's bag, indicates a "dead center" hit within effective range of the shot pattern. No question of a cripple here.

The Care of Raw Furs

The photographs shown here and on page 24 suggest color and relative size of New York furs; they do not illustrate how raw pelts should be prepared for the fur trade.

Top row, left to right: *raccoon, skunk opossum, muskrat.*

In the center, *beaver.*

Bottom, left to right: *grey fox, red fox, long-tailed weasel* (3 pelts—two in winter, other one in summer), *mink, otter, fisher, wildcat.*

TRAPPERS are a rugged lot. Early hours and late are their daily fare during the trapping season, and their calling takes them out in all kinds of weather and to places where the influences of weather are not moderated by snowplows and steam heat.

But although a trapper may suffer the rigors of the elements as he covers his trapline, there's one part of his job that can be done in comparative comfort: Caring for his catch. This is the part of trapping which yields the greatest return per hour of effort, yet all too frequently it is the part treated in a haphazard manner. We still have many trappers who do not realize that preparation for skinning, the actual skinning, the fleshing and drying—these are the jobs that count in handling raw furs. When properly done, these are the aspects of the trapping trade that put folding money in the pocket.

The proper handling of raw furs should start on the trapline. Whenever and wherever possible traps should be set so that a captured animal will drown. Water does not harm the fur during the few hours between its capture and the time when you arrive to claim it. Moreover, drowned animals are less apt to escape as they are speedily and humanely killed. Further, the pelt of a submerged furbearer is hidden and thus escapes damage by other furbearers or birds of prey, and sometimes theft by the unscrupulous human. You should make use of the water to safeguard valuable furs at every opportunity.

Such an opportunity, of course, is not afforded when one is trapping species which are normally taken in land sets. Here a problem is cleanness of the fur. Furs which come in contact with the soil, particularly wet soil, are apt to become extremely dirty, and you will find it to your advantage to wash such furs in cold water. After this is done, hang the animal by the nose in a cool room and allow the fur to dry before skinning.

Frequently furbearers freeze before they can be skinned. This does no harm providing you skin the animal as soon as it's thawed out.

Skinning is generally done more satisfactorily than are other phases of handling raw furs. Most trappers know that, except for beavers, pelts are cased. Cased pelts are those removed much as you would remove a sock by turning it wrong side out. Beaver pelts are handled open or flat. Remove flat pelts in a blanket fashion after making a lengthwise cut down the middle on the underside from the tip of the lower jaw to the center of the base of the tail.

For all fur mammals native to New York with the exception of the beaver, two initial cuts are made in the pelt: One across the body between the rear legs, and the other from the center of this line, around the anal opening to the center of the underside of the tail. It is usual to extend the cut down the lower side of the tail two to four inches.

Remember too that in skinning foxes, bobcats, mink, marten, fisher and the weasels that the feet and tail are part of the pelt. With skunks, raccoons and otters the tail is skinned out whereas the feet are not. The scaly tails and short-tailed paws of muskrats, opossums and beavers are left on the carcass. In other words, the feet and tail of some species may be part of the pelt; for others they may be parts for the garbage can.

The various requirements, in terms of what is left on the pelt or with the carcass, suggest to us slightly different approaches to skinning. With those species where both the feet and tail are a part of the pelt, and the animal is relatively large, such as a fox, it is necessary to cut through the pad and up each leg far enough to facilitate skinning out the foot and leg. With smaller species such as mink and weasels the skinning can be done without making cuts in the pads and legs.

For those animals from which all the furry covering is removed except for the feet, treatment is slightly different. With these, cuts are made around each leg just above the foot. For the remainder—those which have neither the feet or tail skinned out—it is well to cut around each leg and around the base of

(*Continued on page 24*)

Prehistoric Mammals of New York

by Donald W. Fisher,
New York State Geological Survey*

As the comic strip character, Buck Rogers, was able to project himself into the 25th Century, let us imagine that we, like Alley Oop, can project ourselves back in time some three to 15 thousand years when what is now New York State was virgin wilderness. At that time our region was shedding its coat of continental ice, and 'though the topography of the land had assumed its present contours, the life that inhabited the region was one adapted for colder conditions.

This last great Ice Age began some 100,000 years ago when the average annual temperature of the Northern Hemisphere dropped sufficiently to cause huge ice sheets to spread southward across Canada and into the United States as far south as southern New York and the Ohio Valley. The erosive capabilities of the glacier, what with its embedded rocks acting as files and grinders, was extreme, rounding-off the mountains and widening and deepening the existing river valleys. The Great Lakes, which began their existence only some 35,000 years ago, and the Finger Lakes of central New York are enlarged river valleys.

This last Ice Age was but one of four distinct ice ages, each separated by warm interglacial periods when plant and animal life flourished. The entire period was known as the Pleistocene. Some scientists believe that we are now experiencing one of those warm interglacial periods, and that yet another ice age will follow. There may be some merit to this theory, for it is common knowledge that our winters are becoming milder and that temperate zone plants and animals are extending their range northward.

Both vertebrate (backbone) and invertebrate (without backbones) fossils have stimulated the curiosity and interest of laymen and scientist alike. Fossils enable us to reconstruct the animals and environments of the past. Our attention here is directed only to the fossil remains of the vertebrates known as mammals—animals that bring forth their young alive (except for some primitive egg-laying forms such as the duckbill platypus of Australia), and suckle them at the mammae or breasts.

Potentially, Ice Age mammal remains may be found in the deposits formed when extensive glacial sediments such as gravel, sand, clay, marl (limey clay), and peat were forming in New York. Actually the preservation of land animals is pure chance, and their subsequent discovery is equally fortuitous. In any event, three prerequisities are necessary for fossilization: (1) Rapid burial; (2) suitable preserving medium; (3) presence of hard parts.

Rapid burial seldom occurs except under catastrophic circumstances. Under

such circumstances a suitable preserving medium such as will exclude oxygen (the agent of decay) is likely to be present. Hard parts, such as skeletal portions and teeth, are possessed by all mammals, only under exceptional conditions, are soft parts such as flesh, internal organs, stomach contents, and hair preserved. In general, the finer grained the sediment, the more complete is the fossilization. Thus, peat, marl, and clay are better media of preservation than sand or gravel. Contrary to popular belief, no mammalian fossils occur in the *bedrock* of the State, nor have any authentic dinosaur remains been found within the Empire State. (It is important to realize that dinosaurs lived and became extinct some 60 million years before the initiation of the last great Ice Age; hence dinosaurs were not contemporaneous with Ice Age mammals.)

Remains of mastodon, mammoth, bison, musk ox, bear, fox, giant beaver, peccary, moose, elk, caribou and deer have been located in New York State (see map). It is also probable ('though not proved by fossil evidence) that environmental associates such as panther, wolves, arctic fox, wolverine, badger, ptarmigan and heath hen were part of the Pleistocene fauna.

The scene was one in which only isolated remnants of ice remained, and the dominating vegetation consisted of low growing shrubs, conifers (evergreens), willows and birches. Lakes caused by the ponding of the meltwater from the rapidly melting continental ice dotted the countryside. There were mammals which strongly resembled present day forms, but there were also some that we would no longer encounter in New York—either because of migration or extinction.

Mastodons and mammoths

Perhaps the most bizarre of the Ice Age mammals were the mastodons and mammoths, elephant-like superficially but structurally different from the modern pachyderms. All, however, belong to the order of mammals known as Proboscidea and show amazing specialization—of which the fusion of the nose and upper lip to form the trunk (proboscis) is the outstanding characterization. Mastodons differ from mammoths, and from the modern African and Indian elephants in the character of the teeth (a fundamental criterion in the classification of mammals), shape of the skull, and over-all body proportions. Incisor teeth are developed into tusks, although canine teeth are absent. Whereas the cheek teeth (molars) of the mammoth and the African elephant are similar, those of the mastodon are quite different. Cusps of mastodon molars are few in number and occur in pairs of large blunt cones, presenting a fancied resemblance to human breasts. This uniqueness of the teeth has given rise to the name mastodon (Greek: *mastos*-breast; *odous*-tooth). Mammoths further differ from mastodons in that the much elongated and incurved tusks were vertically directed at their bases, some reaching 16 feet in length. Further distinctions between the mammoth and the mastodon are shown in the illustrations which accompany this article.

The Empire State can boast the first remains of mastodon and mammoth found in North America. In the year 1705, according to the original report of Governor Dudley of Massachusetts to Cotton Mather, of witchcraft ill-fame, mastodon remains were discovered near Claverack, Columbia County by "two Dutchmen." A portion of the account taken from the *Boston News Letter* dated July 10, 1706 follows:

"There is a prodigious Tooth brought here, supposed by the shape of it to be one of the far great Teeth of a man; it weighs four pound and three-quarters, the top of it as sound and white as a Tooth can be, but the Root is much decayed yet one of the fangs of it holds half a pint of Liquor; it was lately dug up, a great way under ground in the side of a Bank or Hill 30 or 40 Foot above it, at or near a place call'd Claverack, about 30 miles on this side of Albany, and is looked upon here as a mighty wonder, whither the Tooth be of Man or Beast: They also dug up several Bones, which as they came to the Air crumbled away: They say one of them which is thought to be a Thigh-bone was 17 Foot long."

Our early reporters were prone to exaggerate, for an animal with a thigh bone 17 feet long would rival the Colossus of Rhodes.

Upon the unearthing of mastodon remains in 1800, no less a personage than Thomas Jefferson, then Vice President of the United States, expressed such deep interest that upon assuming the Presidency six months later he obtained some of them which he highly prized throughout the remainder of his life. Indeed, his enthusiasm was so intense that even when his political fate hung in the balance as a result of a tie between Aaron Burr and himself, Jefferson was nonchalantly carrying on correspondence in reference to some "mammoth" bones which had been unearthed near Shawangunk, Ulster County.

General George Washington, while encamped at Newburgh in 1782-1783, had occasion to examine what are reputed to be the first mastodon bones found in Orange County, discovered in 1780, 3 miles south of Montgomery, by the Reverend Robert Annan.

The Cohoes mastodon (*Mastodon americanus*), discovered in 1886 at Cohoes, Albany County, has received widespread publicity due to the circumstances surrounding the discovery site, and because of the restoration, based upon this skeleton, now in the New York State Museum in Albany. The remains were found in two potholes, circular bowl-shaped depressions in bedrock formed by the scouring and grinding action of falling water moving rounded rocks at the base of a waterfall. An accumulation of peat, muck, twigs and beaver-gnawed wood, together with artificial fill, covered the bones to a depth of 60 feet. The bones rested on a bed of clay and broken slate above a layer of water worn pebbles. Dental troubles plagued the Cohoes mastodon, for in addition to having a deformed lower jaw, one of the molars was absent and the remaining right molar was distorted due to pyorrhea.

One of the most striking finds was the Temple Hill mastodon found 3½ miles southwest of Newburgh and 1½ miles west of Temple Hill monument in Orange County in 1921. The jaws retain 12 molars; 3 on each side, upper and lower. The skeleton is obviously that of a young adult, for very old specimens have the total number of molars reduced to 4, one on each side above and below. The tusks are each almost 7½ feet in length, curving inward so that they overlap about 10 inches. The bones were found 2 feet beneath the surface with several bushels of twigs between the ribs—the stomach contents. This skeleton is exceeded in size and completeness by only one other, the Warren mastodon, also found in Orange County, and now in the American Museum of Natural History in New York City.

Other noteworthy New York mastodon remains which illustrate special features are the Monroe mastodon, unique because of the abnormally large size of the bones and the presence of lower jaw tusks (a rare condition in Pleistocene mastodons), and the Ellenville mastodon, which reveals the animal must have suffered considerable pain—for the molars are worn completely through the dentine into the open pulp cavities, and the nerves surely must have been exposed. A toothache for these fellows was "king size."

There were several species of mammoth during the Ice Age but none so picturesque as the woolly mammoth (*Mammuthus primigenius*), so named because of its outer coat of long, coarse, dark brown hair, reaching a length of 20 inches with an underlying dense growth of fine, woolly hair about one inch long. Beneath an extraordinarily thick skin was a layer of fat up to 3 inches thick which further aided in withstanding cold climates. Some

(*Continued on page 22*)

Prehistoric

MASTODON
Mastodon americanus
Approximate height of shoulder
of adult 10 feet 2½ inches

MAMMOTH
Elephas primigenius
Approximate height of shoulder
of adult 9 feet 10½ inches

BISON
Bison bison
Approximately same size as
modern bison. Height at hump 5-6 feet

Mammals of New York State

BLACK BEAR
Ursus americanus
Approximately the size of the
present day grizzly 6-7 feet long

PECCARY
Platygonus compressus
Slightly smaller than adult
male pig. Approximately 4 feet long

GIANT BEAVER
Castoroides ohioensis
Length of adult including tail
(estimated) 6 feet

Approximately same size as modern bison. Height at hump 5-6 feet

(Continued from page 19)

entire carcasses, such as the Berezovka mammoth, have been unearthed in the permafrost area of Siberia. So well preserved was the flesh that sled dogs have been known to devour the meat. It is these cadavers which have supplied us with knowledge concerning the muscles, vital organs, stomach contents, and hair. Other common Ice Age mammoths were the Imperial mammoth (*M. imperator*) of the southwestern United States, largest known elephant (13′6″ at the shoulders) and the Columbian mammoth (*M. columbi*), of South Carolina, Georgia, and Florida, not particularly large but with highly developed molars.

In New York, molars are the chief mammoth remains, 'though an exception to this was the discovery in May, 1934 of the Randolph mammoth, now in the New York State Museum. The skull and nearby tusks were found in marl 8 feet below the surface on the grounds of the New York State Fish Hatchery, 2½ miles east of Randolph, Cattaraugus County. The skull is 4 feet long, while the greatly curved tusks measure 9 feet in length.

It is puzzling that, when mastodon and mammoth fossils are found, only a single individual is represented. As with modern elephants, certain bulls may have been ostracized from the herd for obnoxious behavior, forever after to shift for themselves and never again admitted to the fraternity of the herd. In support of this theory, fossil mastodons and mammoths are usually well advanced in years, except for catastrophic deaths.

Judging by the frequency of fossil remains of both mastodons and mammoths, they were as abundant as the common deer of today. What, then, caused their disappearance? Probably, it was a combination of factors: Unfavorable climatic conditions, disease, scarcity of food, predators, advent of man who killed them for food and clothing, and difficulties and infrequency of reproduction (the gestation period of the modern elephant is almost 2 years, and multiple births are very rare).

Other Pleistocene mammals

Among the flesh eating mammals (Carnivora), both bear and fox remains have been found in New York. The bears were relatively large, approaching the size of the modern Kodiak bear of Alaska (length, 8 feet; weight, 1,500 pounds). The black bear *(Ursus americanus)* was also common, several fossils having been found in the vicinity of Syracuse, Onondaga County. The sole record of fossil fox is that from Gulf Summit, Broome County in 1848, 'though fox were undoubtedly more abundant than this single find would imply.

Rodents (gnawing mammals) were represented by the giant beaver, *Castoroides ohioensis*, a species fully twice as large as the modern beaver and one which would have produced a handsome pelt. A particularly fine skull was found near Clyde, New York in 1845. Contrary to popular opinion, only the lower incisor teeth are used for "chiseling"; the upper incisors are used for leverage alone.

Even toed, or cloven-hoofed mammals (Artiodactyla) were abundant Ice Age inhabitants of New York. Three families were represented: The cattle family (Bovidae), peccaries (Tagassuidae), the deer family (Cervidae).

The Bovidae, including the modern cattle *(Bos)*, are characterized by sheathed hollow horns on both sexes. Musk oxen, now confined to the Arctic Zone, formerly penetrated as far south as Arkansas. They are stockily built with short neck and legs and a slight hump at the shoulders. Like the beaver they prefer aspens, willows, and birches. In 1952 a partial skull of the musk ox *Ovibos moschatus* was found at a depth of 8 feet in stratified drift at Willow Point, Town of Vestal, Broome County.

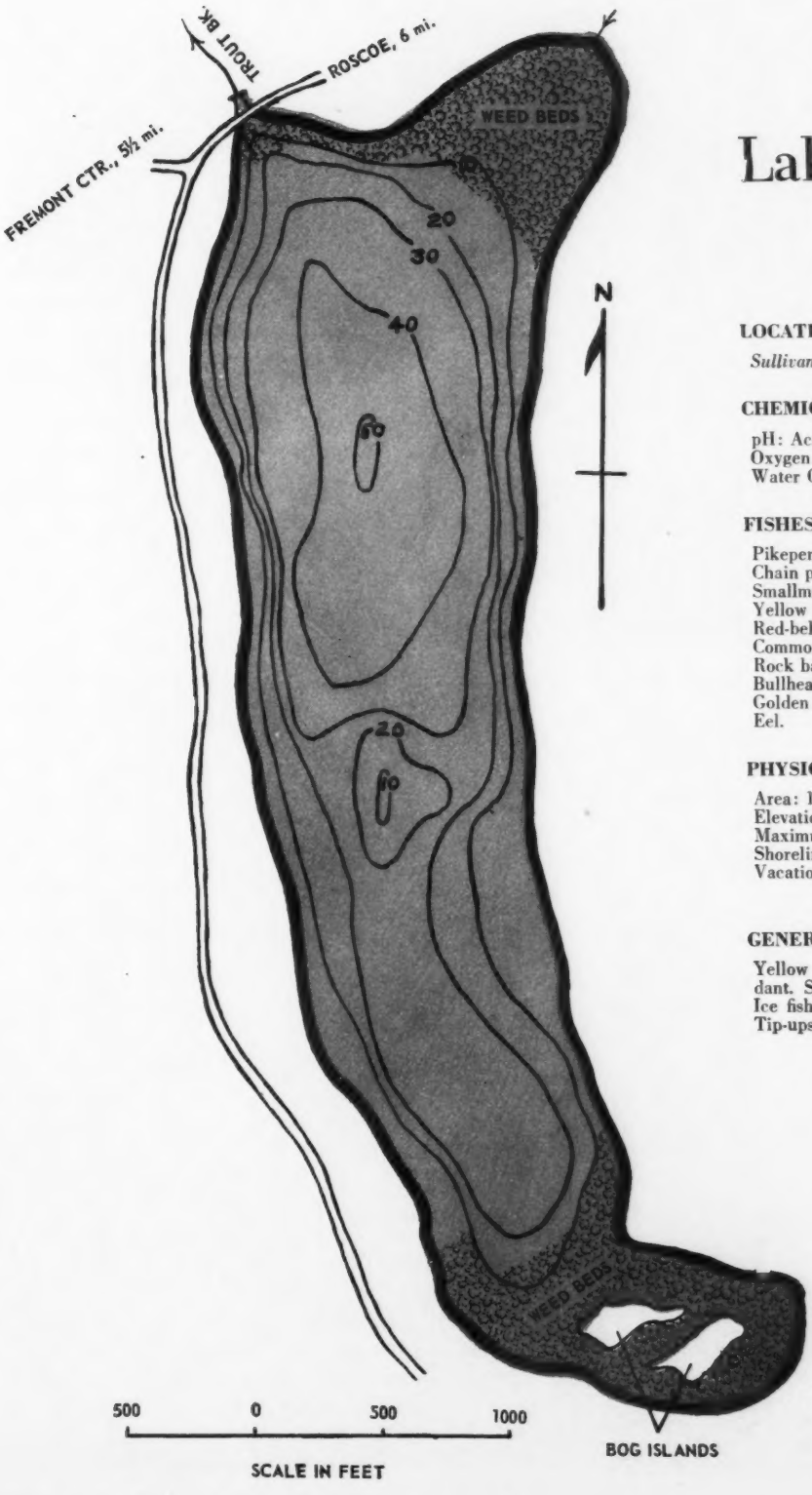
The bison or buffalo *(Bison bison)*, which formerly were abundant in the eastern and central United States, 'though not as pretentious a creation as his extinct cousin, the Royal bison *(Bison latifrons)* which possessed a 6-foot spread of horns was nevertheless a prize that our Ice Age hunter would have eagerly sought. Reports of bison in New York have persisted up to the early 19th Century.

Peccaries (Tagassuidae) resemble modern pigs except that the canine teeth are straight (rather than curved as in the pigs) and the legs are somewhat longer. Modern peccaries are not found north of southern Texas. But fossil peccaries *(Platygonus compresus)* have been found near Gainesville, Wyoming County.

The deer family (Cervidae), unlike the cattle family, possesses antlers rather than horns. Antlers, unlike true horns, are solid branching structures which are shed annually and are usually only carried by males. Caribou, however, are noteworthy for the presence of antlers on the female, and a shed antler of the barren ground caribou *(Rangifer arcticus)*, having circular cross-section and an "armchair" appearance, was discovered 3 miles north of Schenectady in sand and gravel of glacial Lake Albany, an ancient lake which occupied the lowland upon which now stand the Cities of Albany and Schenectady. Other Pleistocene mammals known to have lived in New York were moose, elk and white-tailed deer.

THE writer would appreciate receiving information on fossil mammalian finds within the State. When writing, please give exact locality of discovery, depth of burial, type of material in which the bones or teeth were embedded, and submit specimens (or at least photos) so that the find may be properly authenticated and recorded. We still have much to learn about the early residents of this State.

* Published by permission of the Director, New York State Museum and Science Service, Journal Series No. 1.



Lake Tennanah

LOCATION

Sullivan County, six miles southwest of Roscoe.

CHEMICAL CHARACTERISTICS

pH: Acid (6.5).
Oxygen: Satisfactory for fish life at all depths.
Water Color: Clear.

FISHES PRESENT

Pikeperch.
Chain pickerel.
Smallmouth bass.
Yellow perch.
Red-bellied sunfish.
Common sunfish.
Rock bass.
Bullhead catfish.
Golden shiner.
Eel.

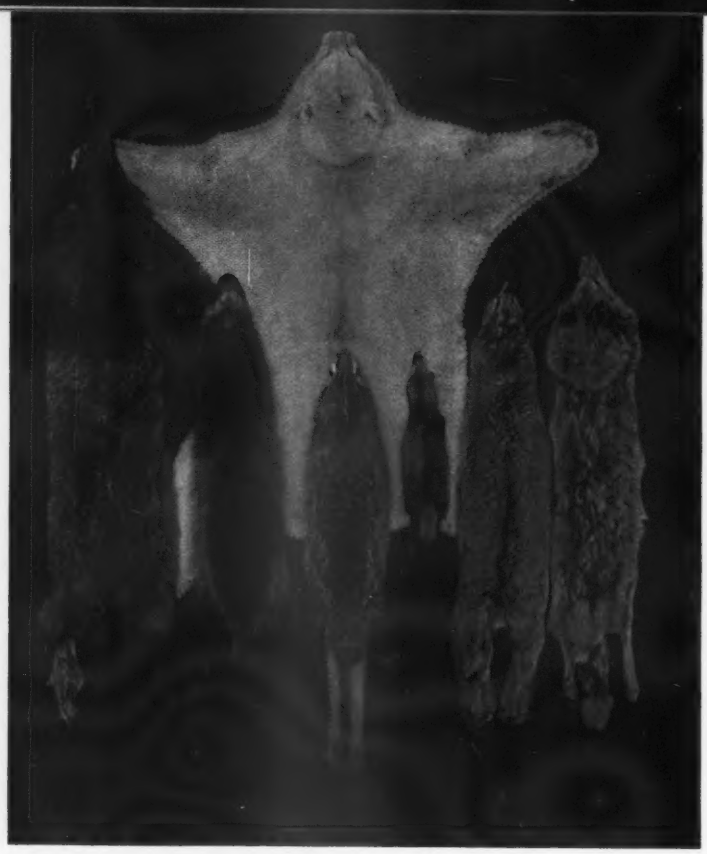
PHYSICAL FEATURES

Area: 154 acres.
Elevation: 1,956 feet.
Maximum Depth: 50 feet.
Shoreline: Wooded with scattered cottages.
Vacation Accommodations: 2 resort hotels; cottages to rent.

GENERAL

Yellow perch, bullhead catfish and sunfish abundant. Stocked with 300,000 pikeperch fry annually. Ice fishing with tip-ups permitted alternate years. Tip-ups permitted 1954-55 season.

—JOHN S. GRIM,
Aquatic Biologist



(*Continued from page 17*)

Left to right: *Wolf:* normally grey, but blacks are frequent. Last recorded in St. Lawrence County in 1899. Weighs up to 100 lbs.

Wolverine: largest of the weasel family. Last one killed on Raquette River in 1884. Weighs 25-40 lbs.

Badger: not yet reported in this State, but extending its range in our direction. Another of the weasel family, weighing 12-24 lbs.

Marten: increasing but still uncommon. Protected; weighs 1¼-4 lbs.

Lynx: missing since 1907 until one was killed in Washington County in 1951. Weighs up to 40 lbs.

Coyote: a new citizen, apparently well established in the Adirondacks. Average weight about 30 lbs.; maximum under 50.

Mountain lion (panther, puma, cougar, etc.): is the background skin. Last positive record in New York, 1894.

the tail. With muskrats such cuts are not necessary but may help you, particularly if you're new at the business.

It will be necessary to remove the tail bone once the fur has been removed from the hind quarters. This can be best done with either the finger or a clothes pin. The pin saves wear and tear, but one isn't always handy. After this bone has been removed, it is well to stick it through a slit made in the muscles of the rear leg so that it will remain out of the way. Split tail to the tip after tail bone is removed. The rest or the job of skinning is simple. Merely pull the skin down over the carcass, cutting tissues as required. When the head is reached be sure to cut the ear bases close to the skull, and then skin around the eyes so as not to enlarge the eye hole. Complete the job by carefully skinning out the lips.

Now that the skinning is done, the pelt must be fleshed; that is, excess flesh and fatty tissues should be removed. This is necessary as the presence of these tissues on the skin may cause deterioration with the result that the hair will "slip" or fall out. A pelt damaged in this manner is worthless. The best way to learn about fleshing is to see it done by an expert. Mink farmers are usually adept in the technique, and most fur buyers will be able to demonstrate the proper approach to fleshing one or all the species you are likely to catch.

Fleshing a beaver pelt is something else again. Most trappers cut away excess tissues as they remove the pelt, but fleshing and skinning at the same time *is* a job. The hundreds or knife scores present after the pelt treated in this manner has dried impart a "hacked-up" appearance, and fleshing to produce a smooth face on the flesh side should be practiced.

To do this, select a smooth wooden surface about four feet square. To this nail a beaver pelt which has been skinned so that the greater part of the excess tissues have remained with it. While nailing the pelt, it should be stretched as much as possible. When it has been securely nailed in place, remove the fatty covering along the edges with a stiff knife. Then take a sharp hatchet or small axe and push and cut the fatty mass from the rest of the pelt. Nails must be reset, as you go along, to keep pelt as taut as possible, thus preventing wrinkling ahead of the axe. When a beaver pelt has been treated in this manner, the finished product will be as clean as a drumhead.

If the board is not needed for fleshing additional beavers, the pelt may be left thereon to dry. Generally, however, it is well to restretch and renail a beaver pelt after fleshing.

With other furbearers we do *not* s-t-r-e-t-c-h the pelt. Rather the pelt is placed on a drying form which fits it snugly and where it should remain until the flesh side becomes dry and brittle. But again, there are exceptions. Foxes are put on a drying board and left until the flesh side has partially dried. Then, they are turned so that the fur side is out.

With all cased pelts the furs should be held securely on the stretcher either with tacks or clamps. The tail should be cut open and, as with the feet, should be tacked open using separate, small boards. If excess oil is noted on the pelt as it dries, it should be wiped off with a dry cloth. This is particularly true with valuable, fine furs such as mink.

Once furs have been removed from the drying frames, they should be hung in a cool, well-ventilated, mice, rat and bug proof room until they are sold or packaged for sale. In preparation for a sale, be sure your furs look their best. If some pelts have been put on stretchers when wet, the hair will be matted and the result will be an unprime appearance. Fluff-up the hair by passing the hand over it so that the dark spots on the "leather" disappear.

The problem of whether to ship your furs or sell locally is a real one, and a personal one. No one can or should advise you. We can only say, "Sell where you get the most for your furs". But any good fur buyer will pay more if you handle your furs properly.

—Arthur H. Cook,
Game Research Investigator

The checking point at Cedar River Flow

Report on the Experimental

2-Deer Season in the Adirondacks

COINCIDENT with the 1954 season for buck deer in the State's Northern (Adirondack) Zone, the Conservation Department operated an experimental antlerless deer season on 533 square miles of remote wilderness range in the Oswegatchie-Beaver River Flow and the South Branch Moose River-West Canada Creek areas. This special season was designed to permit hunter harvest of surplus deer in these normally under-hunted regions where a series of mild winters had resulted in herd build-up. A more adequate harvest, it was known, would reduce the number of deer doomed, during even a normal winter, to starvation and lessen the shortage of winter food for the remaining breeding stock.

Although long accepted by a number of western states as a sound management tool for big game, this type of season—permitting a holder of a big game license and a special license to take two deer, a duck and a doe, within these wilderness tracts—was something new in New York.

Results of the season have been awaited with interest by sportsmen and by the Conservation Department—as a guide to future deer management policy. The antlerless deer kill on these tracts and the total number of special license holders who actually went into these wilderness areas to hunt are of immediate interest. This information has been tabulated by the District Game Managers in charge and is shown below.

Public acceptance of this experimental season, and co-operation with the Department was gratifying: 5,344 or 76.3 per cent of the 7,000 special licensees hunted the tracts despite the limitations imposed by difficulty of transportation, shortage of access routes, extensive posting of privately-owned lands within the tracts, and hazards of the blow-down. Hunting success, however, went a long way toward compensating hardy sportsmen for their effort. A total of 1,719 antlerless deer were taken for an over-all success ratio of 32.2 per cent.

ANTLERLESS DEER KILL AND HUNTER SUCCESS
on
EXPERIMENTAL WILDERNESS DEER TRACTS

	Oswegatchie Beaver River Flow Tract	S. Branch Moose River-West Canada Creek Tract	Totals
Total Area in Square Miles	297	256	553
Area Most Intensively Hunted (Sq. miles) ..	50	95	145
Total Number Special Antlerless Licenses Issued.	4,000	3,000	7,000
Total Number Licensees Actually Hunting	3,243	2,101	5,344
Per Cent Licensees Who Actually Hunted Tract...	81.0	70.0	76.3
Total Number Antlerless Deer Taken	1,098	621	1,719
Per Cent Successful Hunters	33.9	29.0	32.2

Not all the results, however, were on the credit side of the ledger. Biggest disappointments to the Game Managers were limited penetration by hunters into the interior of the wilderness tracts, and concentration of the majority along tract boundary areas, particularly near the intersection of access trails. Closure of large blocks of privately-owned lands within the tracts, blow-down and transportational difficulties again were primarily responsible for this situation. On the South Branch Moose River-West Canada Creek Tract, check station operators estimated that approximately 90 per cent of the total hunting pressure was exerted on about 37 per cent of the total area, while on the Oswegatchie-Beaver River Flow Tract about 60 per cent of the hunters were concentrated on approximately 17 per cent of the area. These circumstances seriously limited the Department's objective of securing a uniform harvest from the areas.

Further studies of the data presented here, together with ground and aerial surveys of range and herd condition on these tracts will be required before game men can recommend modifications of the 1954 experimental season. It is possible, however, from analysis of the information now at hand, to make some observations and to draw a few definite conclusions:

It's raining, but of course they're going in anyway

1. To the considerable relief of the Department, the dire predictions by some that hunters were being lured into a death trap did not materialize. Despite hunter concentration in some sections of the wilderness tracts, and even 'though any deer (with or without antlers) could legally be shot, there were no hunting accidents on these tracts.

2. Despite efforts to fully apprise hunters beforehand of the rigors they would experience within these remote areas and the necessity of being fully prepared with compass, good maps, careful plan of operation and adequate equipment and clothing, many went into the tracts unappreciative of the hazards involved and ill-prepared to meet them. More than a dozen hunters were lost for periods up to three days. Fortunately, all ultimately found their way back to their camp or the camp of other hunters, or were located by the Department's Forest Rangers and Game Protectors. Utilization of fire towers, two-way radios and field telephones was invaluable in directing search rescue parties. It's clear, however, that in the future more emphasis will be needed in informing hunters of these remote tracts of these hazards and what they must do to prepare to meet them.

3. In any future operations of this nature some changes in procedure must be worked out to assure that hunting pressure will be spread more evenly over the tracts from which a heavier deer harvest is desired. Under the present system there is an apparent tendency for numbers of hunters to concentrate around the three-mile interior border. Lack of further penetration lessens hunting effectiveness and limits fulfilment of the special season's objectives.

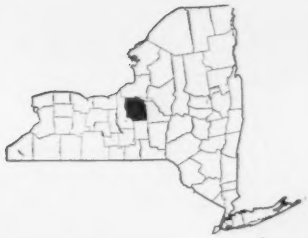
4. Conclusions drawn from years of intensive study and careful surveys of Adirondack "starvation areas," bearing upon the status and condition of the deer herds and of their range in these tracts were borne out by deer killed. A few random check station records on dressed deer illustrate this point—one 10½-year-old doe, killed on the Moose River-West Canada Creek Tract, weighed just 96 pounds. Another 6½-year-old doe from the same area weighed 77 pounds, while the largest deer checked through the Piseco Lake station during the first week was a 5½-year-old doe weighing just 100 pounds. Poor growth was also evident in yearling bucks taken on these tracts. Of 101 bucks in this age class taken from the Oswegatchie-Beaver River Flow tract, 41 had not developed legal antlers (3″ long). The Moose River-West Canada Creek tract was somewhat better on this score, there being only 13 out of 56 yearling bucks checked out, with antlers less than 3″ long.

In addition to securing invaluable information for use in future better management of interior Adirondack deer herds and their range, Department check station personnel learned a great deal about the often peculiar behavior of hunters and, incidentally many hunters learned to their amazement, something about the vast Adirondack wilderness resources of New York State. A party of ten flew in to the Spruce Lake section from Speculator for a week's stay, taking over a ton of equipment along. As a hedge against hunger and thirst they took along 32 dozen eggs, 4 hams, 34 quarts of milk, a case of breakfast cereal and 7 cases of beer. Another hunter carried in a heavy iron camp stove while a party of three hit the trail lugging in, among other things, a 100-pound sack of potatoes. They planned to be in three days.

Another hunter, after making inquiries about the quality of Adirondack streams as a source of drinking water decided that he wouldn't need to carry in the 10-quart pail of drinking water he had with him. One party checking out from the Cedar River Flow area reported they had shot at and wounded a coyote trailed by two coyote pups. They estimated the weight of the adult coyote to be 150 pounds; the pups 60 pounds each (the Department's heaviest weight record for an Adirondack coyote is under 50 pounds). Two hunters from Buffalo arrived at the Big Moose check station dressed in light clothing and wearing oxfords. They had no camping equipment, having planned to eat in diners and sleep in motels which they assumed would be handily located within the tracts. They turned in their permits and went back to Buffalo.

And one final conclusion—and this is shared by the hunters and Conservation Department personnel: The experiment has been educational and, for the Department, of inestimable value in shaping future plans. —A. W. Bromley

Onondaga County



THE BACK OF THE BOOK

Scattershots
And Department Activities

Hunting accidents

Casualties totaled 1,166 in 1953, according to the uniform hunter casualty reports submitted by 24 states (including New York) and two provinces of Canada to the National Rifle Association, Washington, D. C. This was an increase of 337 over those reported in 1952. There was a 1 per cent decrease in the non-fatal and a 1 per cent increase in the fatal accidents, the non-fatal percentage in '53 being 81 and the fatal 19.

Seventy-two per cent of the casualties in 1953 were not self-inflicted—a drop of 1 per cent from 1952; 28 per cent of the 1953 casualties were self-inflicted, or 1 per cent more than in '52.

The rifle and handgun figured in smaller percentages of the casualties by type of weapon in '53 than in '52. But the shotgun jumped to 63 per cent against 60 per cent in 1952.

The greatest number of not self-inflicted casualties occurred in both 1952 and 1953 at from 10 to 15 yards from the muzzle to the wounded; 272 in '53—up to 66 over '52. The next greatest number was under 10 yards, and next from 50-100 yards; both showed increases. Those at 100 yards or more, while the least, increased 16 over 1952.

There was clear visibility when 71 per cent of the casualties occurred in 1953. In open cover 26 per cent of the casualties took place; in light cover, 39 per cent; and in dense cover, 35 per cent. It was at 10 a. m. and at 3 and 4 p. m. when the most occurred.

Twenty-eight more victims were not within clear sight (but got an intentional discharge anyway) in 1953 than in 1952, when 153 were similarly shot; 40 more than in '52 were hit by a shooter swinging on game; 28 more were mistaken for game, and 29 more moved into line of fire.

The hunters 19 years of age or under were the worst offenders, 390 (up 233 over 1953) figuring in the hunting casualties. For the last three years those with 3 to 5 years' experience hunting have had 18 per cent of the accidents—or 321 out of 1,735 known; for this period those 19 or under have had 38 per cent, or 827 accidents out of 2,320 known.

In an analysis of 381 casualties of victims reported for 1950-53 as being mistaken for game, the 20-29 age group accounted for 25 per cent; deer hunters, 58 per cent; at 10-15 yards, 52 per cent; and those who were costumed brightly comprised 60 per cent of the casualties.

—R. B. M.

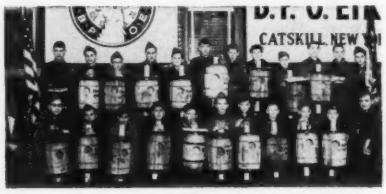
A prophet in his own country

"It is probably true that more than ten men now hunt deer where one hunted thirty years ago, and that not one in twenty of these who now hunt deer have had the training and experience necessary to make them deer hunters in the true meaning of that term. They are simply shooters. . . . What else than loss of human life can be expected?

"If all these shooters had been trained from boyhood never to point a gun, loaded or unloaded, at any person; never to carry a gun cocked; never to carry a loaded gun along a highway; never to get into or out of a wagon or boat with a loaded gun; never to have a loaded gun in any house, or camp; never even get over a fence with a loaded gun; never to shoot, or even bring a loaded gun to face, until the hunter *knows* what he is to shoot at; and had been taught, trained, and given actual experience in all things that a real hunter ought to know and do, then it would be safe to go into the woods hunting. . . .

"It is proposed to have a hunting license law enacted at the present session of our legislature. If, in this law, certain requirements as to the ability to properly and safely handle a gun and hunt are made necessary to the issuing of a license to *hunt deer*, many of the inexperienced and careless shooters will be kept out of the Adirondacks, and this will help save human life."

—From "Mistaken for Deer Shootings," by Clarence L. Parker, *Stoddard's Northern Monthly*, Glens Falls, February, 1908.



Scout work

Boy Scouts of Troop 44, Catskill, with a few of the 60 woodduck nesting boxes which they constructed and will erect in their section of Greene County. This is one of several Conservation projects carried out by this Troop in co-operation with the N. Y. Conservation Department and local sportsmen's groups.

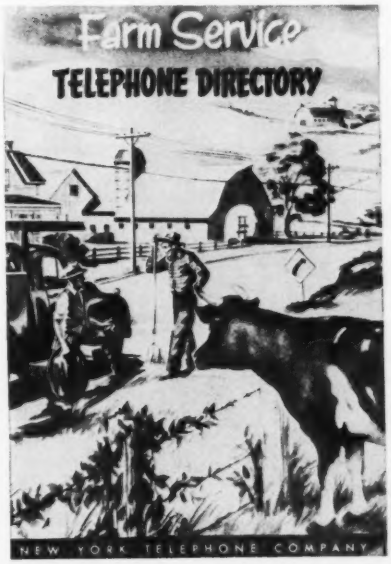
Hunting for the G.I.

New York State sportsmen will be interested in a recent ruling by the Indiana Supreme Court that free hunting and fishing permits, which Indiana has issued to

veterans since 1927, were unconstitutional.

The opinion came in a test case filed in 1953 by a Gary (Indiana) conservationist and non-veteran. Since the Indiana State Conservation Department does not plan to appeal, the free permits apparently will become void after the 20 days given to file for rehearing. The ruling cited the provision of the Indiana State Constitution that bars legislation for the special benefit of one class of persons.

In New York State, members of the Armed Forces on active duty, when hunting or fishing in uniform or when having on their person furlough or copy of leave order and service identification tag, hunt or fish for free. They may not hunt deer or bear, however, but must have the big game license.



Dial "C" for conservation

Despite the perfection of agricultural machinery, it's most improbable that hard work will ever be removed from farming. Agricultural research, however, has virtually eliminated guess work in this field and today a host of specialists stands ready to advise and assist the farmer in the proper management of his lands and its varied products.

These services, for the most part, are no farther removed from the modern day farmer than his telephone. Yet frequently he may not know of their existence or, if so, where and whom to call. To bridge this gap the people who operate the connecting link—the Telephone Company—have published a *Farm Service Telephone Directory* for free distribution to subscribers to its service.

The pages include a listing of the N. Y. S. Conservation Department district field personnel in forestry and in fish and game management. Other field service branches of the Conservation Department are also listed in the Directory, as are all state and federal field agencies offering vital services to farmers.

To secure a copy of this valuable directory, the New York Telephone Company advises farmers to contact their local telephone business office.

Weed control conference

Because widespread interest in weed control, particularly by chemical means, the Northeastern Weed Control Conference was first organized in 1947.

The purpose of the Conference is to bring together the results of research in the field of chemical weed control in the Northeast, to review the work that has been done and to make recommendations for further research. Although the bulk of this research is centered around horticultural and agronomic crops, the control of brush in forestry and industry and control of aquatic weeds in lakes and ponds have become increasingly important considerations. Brush control, especially along highways and public utility rights-of-way, should interest the conservationist because it changes the picture of the landscape and has a direct effect on wildlife in the vicinity. Control of aquatic weeds in ponds and lakes interests most anyone who swims, sails or fishes—especially the owner of a weed-filled pond or a resident on a weedy lake.

The Conference has grown from 78 representatives in 1947 to 492 in 1954. During that time great progress has been made. The Conference now includes 13 Northeastern states and has had many valuable contributions from other states and Canada. In addition to developing practical large scale methods of chemical brush control for such prospects as power line rights-of-way, practical methods of chemically removing weeds from lawns have been devised as well as treatment for such plant nuisance as poison ivy and ragweed. No safe, economical, practical method has as yet been developed, however, to chemically control the submerged aquatic plants in lakes and ponds. But scientists and biologists are working on the problem, and when someone comes up with a solution this magazine will be most happy to print it. —Roy Irving

Survey completed

The State University College of Forestry office at Harrietstown in Franklin County, set up five years ago as headquarters for a survey of the Adirondacks and the Catskills, will close this spring. "Forest Acreage and Timber Volume in the Adirondack and Catskill Region," a report based on the survey, has been completed.

The survey was undertaken at the request of the State Board of Equalization and Assessment which in '49 was required by law to determine annually the ratio of assessments to the full volume of property in all municipalities of the State and to approve annually assessments on State-owned lands.

The study has been made under the general direction of Prof. James E. Davis. Miles Ferree, research associate in forest economics, has been in charge of the office, and with two other college faculty members, Robert K. Hagar, technical assistant, and Neil J. Stout, research assistant, will remain at the headquarters until it closes on April 30.

Twelve college personnel and eight representatives of the State Board of Equalization and Assessment have been at the office at the height of its activity.

Niagara Parkway

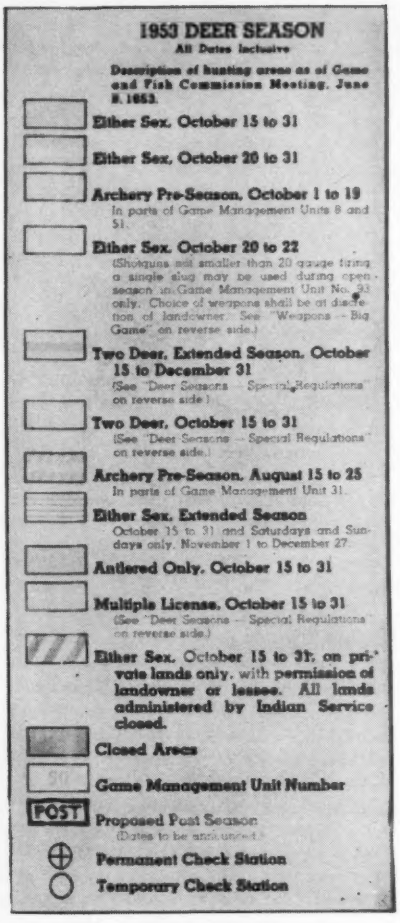
Plans of the New York State Power Authority, including development of a new scenic parkway along the Niagara River which ultimately will connect the North Grand Island Bridge with the Niagara Reservation and the widely separated Whirlpool, Devils Hole and Lewiston Heights State Parks on the Niagara River below the Falls, have been announced in an engineers' report detailing the Power Authority's plans for the Niagara Falls power project. The parkway is to be extended inland to Fort Niagara State Park on Lake Ontario.

These plans call for expenditure of 405 million dollars in four years, including $13,848,000 for the Niagara Parkway from the Grand Island North Bridge to the Niagara Reservation.

The plans contemplate a river intake 3 miles above Niagara Falls with a 67 million dollar system of conduits carrying the water around the Falls to a main powerhouse in the Town of Lewiston—where there would also be a huge storage reservoir to be filled at night for daytime loads. This would have a capacity for peak requirements of 1,240,000 kilowatts, nearly three times the capacity of the private power plants now utilizing Niagara water. The project, along with its $26,252,000 estimated annual costs, would be financed by 30-year 3 per cent bonds.

The parkway system on the American side would be in harmony with that achieved over the years on the Canadian side.

The engineers' report was based on studies intended to provide the basic data for application to the Federal Power Commission for license to proceed with the project once the necessary legislation is passed.


1953 DEER SEASON
All Dates Inclusive
Description of hunting areas as of Game and Fish Commission Meeting, June 8, 1953.
Either Sex, October 15 to 31
Either Sex, October 20 to 31
Archery Pre-Season, October 1 to 19
In parts of Game Management Units 8 and 51.
Either Sex, October 20 to 22
(Shotguns not smaller than 20 gauge firing a single slug may be used during open season in Game Management Unit No. 33 only. Choice of weapons shall be at discretion of landowner. See "Weapons — Big Game" on reverse side.)
Two Deer, Extended Season, October 15 to December 31
(See "Deer Seasons — Special Regulations" on reverse side.)
Two Deer, October 15 to 31
(See "Deer Seasons — Special Regulations" on reverse side.)
Archery Pre-Season, August 15 to 25
In parts of Game Management Unit 31.
Either Sex, Extended Season
October 15 to 31 and Saturdays and Sundays only, November 1 to December 27.
Antlered Only, October 15 to 31
Multiple License, October 15 to 31
(See "Deer Seasons — Special Regulations" on reverse side.)
Either Sex, October 15 to 31, on private lands only, with permission of landowner or lessee. All lands administered by Indian Service closed.
Closed Areas
Game Management Unit Number
POST
Proposed Post Season
(Dates to be announced.)
Permanent Check Station
Temporary Check Station

The Colorado deer season

Sportsmen in New York who are sometimes baffled at variations in game seasons and bag limits or are confused by hunting zone lines should try hunting deer in Colorado. They undoubtedly would get a deer (success ratio for non-residents is reported to be very high there) but just as undoubtedly they would return to New York feeling our game seasons and zoned hunting pattern are relatively very simple.

Next best thing to hunting deer in Colorado is to examine the symboled legend (shown here) setting forth their various deer seasons for 1953. In the original, this legend accompanies a 16" x 21" multi-color patterned deer hunting guide map of the State. It will be noted that no less than 12 different seasons are provided for in harvesting deer in specified areas of the state. But such seasons, despite their complexity, have been demonstrated to be effective and sound management of the deer herd in that state.

The Colorado Department of Game and Fish, reporting on deer seasons for the years 1948 through 1953, has some interesting things to say about their deer harvest. During this six-year period an average of 99,351 deer licenses were sold each year and these licensees took an average of 70,558 deer—for a success ratio of 71.5 per cent. An average of 65.5 per cent of Colorado's hunting area was open for the taking of a deer of either sex and 20.8 per cent of the area was open for two deer on a license. During the six-year period 55.9 per cent of the kill was bucks, 36.3 per cent does and 8 per cent fawns.

More on 2, 3-Dichlone

In our April-May, 1952 issue we mentioned that University of Wisconsin botanists were experimenting with a chemical to obtain algae-free water. We had heard nothing further of this until recently, when a paper, "Control of Blue-Green Algae Blooms With 2, 3-Dichloronaphthoquinone" came out. Those of our readers who have algae problems in their ponds will be interested.

George P. Fitzgerald and Folke Skoog of Wisconsin University's Department of Botany at Madison, in their paper (reprinted from *Sewage and Industrial Wastes*, Vol. 26, No. 9, September, 1954) report that 2,3-dichloronaphthoquinone, or 2,3-CNQ (now standardized as dichlone) "when applied in sufficient concentration (30 to 50 parts per billion) is effective in eliminating even very heavy blooms of blue-green alage. The treatments had no apparent adverse effects on the fish and general biotic conditions in the lake. Observations carried out by the Wisconsin Conservation Department in conjunction with these experiments have shown that the population of fish and zooplankton was abundant and remained unaffected by the treatments."

Large-scale tests of the effectiveness of 2,3-CNQ in controlling excessive growths of blue-green algae were carried out in a 27-acre, highly fertile lake which normally supports a continuous bloom of algae during the summer months. Spraying applications of 2,3-CNQ suspensions to give over-all concentrations from 30 to 50 p.p.b. (parts per billion) in the lake clumped and effectively killed even heavy growths of the *blue-green* algae, but the chemical treatment had no observable harmful effects on *green* algae, higher aquatic plants, fish or zooplankton. In cases of rapid recurrence of growth of the blue-green algae, repeated applications are necessary. Lasting effect of treatments, however, may be indirectly increased by vigorous growth of *green* algae and higher aquatic plants following the suppression of the *blue-greens.*

In the near future we hope to have information on other chemicals for the control of algae. Our subscribers have written us many letters on this subject, and perhaps we will soon be in a position to give them more helpful information than in the past. —ROLAND B. MILLER

Wanted: otter carcasses

It would be appreciated very much if those who trap otter during the spring 1955 season would send the carcasses of the otter trapped to W. J. Hamilton, Jr., Department of Conservation, Cornell University, Ithaca. The carcasses can be wrapped in a gunny sack and shipped *express collect.*

Examination of carcasses provides much useful information on the life cycle of this animal and will be used in the New York State Otter Research Project. The receipt of all carcasses will be acknowledged. —W. J. HAMILTON, JR., *Professor of Zoology, Cornell University*

They don't come much bigger

The photograph shows Egbert H. Schultz of Kingston and his really king-size trophy taken last November 16 while hunting near Lake Hill, Ulster County. This huge black bear, the first one Schultz had ever seen in the wild in more than 30 years' hunting experience, was killed with one shot at approximately fifty feet. Dressed weight was 395 pounds. Live weight, calculated according to Gerstell's conversion figure of 14.1 per cent dressed weight loss, would have been approximately 460 pounds.

Not a State record, but a big bear—biggest reported to the Conservation Department for the 1954 season. The record is held by Jean Mose, Saranac Lake, who, in 1938 took a 532-pound bear, live weight.

Weakfish study

Late in 1952 the Conservation Department began a research study in the Marine District to determine the reasons for the sharp decline in the numbers of weakfish in the waters around Long Island and to develop means to bring about recovery of the fishery. Recognized on the market for its value as a food fish and eagerly sought after through the summer months by sports fishermen, weakfish provided a commercial harvest, in New York alone, of about 1½ million pounds in 1947. In contrast, the 1952 New York commercial catch of "weaks" dropped to 161,000 pounds and the rod and reel catch fell off proportionately.

In the time remaining in 1952, after approval of the project under the Dingell-Johnson Federal Aid Program, fisheries biologists worked out final details in their plans for the study, refitted one of the Department's marine partol boats as a research vessel, assembled aboard the boat and at the base laboratory at Freeport, Long Island the diverse and specialized instruments and equipment required in this pioneering investigation and made necessary field contacts—particularly in the Peconic Bays and Great South Bay, traditional congregating areas for weakfish in our waters.

Early in May of 1953 the biologists were ready to begin their intensive "pulse taking" of the weakfish patients as they arrived from the South—particularly from the Carolinas' coast. The movement of schools of weakfish was traced with an electronic sonar or echo-sounder device aboard the research boat and sample nettings were made to determine size and age composition of the run. At the same time tags were affixed to the fish and they were released to tell the story, upon their later recapture by fishermen, of where they go, when, and the proportions of the population harvested by sport and commercial fishermen. This phase of the work resulted, during the spring of '54, summer and fall, in bringing to more than 2,000 the number of "weaks" tagged and released in Long Island waters. How much can be learned as a result will largely depend upon the continued fine co-operation of both sport and commercial fishermen in turning in tags from weakfish they may subsequently catch to the Conservation Department at Freeport or to the biologists in the field. As a further check on the subsequent catch, information will be available through the Department's companion Dingell-Johnson study of the recreational or rod and reel catch census of all marine game species.

Further in relation to the fish themselves, co-operation has been secured from biologists of other Middle-Atlantic States within the migration limits of the species. Preliminary analysis of the data indicates our fishermen may benefit more from the northward migration of "weaks" spawned along more southerly coastal areas than from the "home grown" production of such waters as the Peconics and Gardiners Bay. Comparative data for several years is needed, however, to give a conclusive answer.

But weakfish, like all other species, do not live in a vacuum and to determine reasons for their success or failure, many factors influencing their environment must be studied. Accordingly, work was done during last summer to sample plankton supply—the foodstuff of newly hatched "weaks" and, at the same time, check the success of spawning in our waters by plankton net collections of weakfish eggs.

The studies conducted thus far and the information collected thereby will not, of themselves, assure the recovery of this one-time "million dollar" fishery. Fortunately, though, study material in the form of a more abundant weakfish population is now at hand. Studies have already shown that "weaks" had successful spawning years both in 1951 and 1953 and the "51"-year class provided the best Peconic Bay fishing last spring that has been seen in many years. These fish ranged from 14 to 16 inches, but much larger fish (some tipping the scales at 12 pounds) have been taken, particularly in the Great South Bay area.

Data on these year classes together with previously secured information will be valuable in fitting together unknown pieces of the weakfish puzzle which, when finally assembled, will form the basis for future management.—ALFRED PERLMUTTER, *Senior Aquatic Biologist (Marine)*

Marine note

Marine borers with an appetite for wooden underwater structures will have a harder time finding a square meal if a new protective method developed by John C. Ayers of the Cornell University Department of Conservation is used.

Ayers, who is Associate Professor of Oceanography at Cornell, has found a way of precipitating borer-proofing chemicals into the fibers of the wood which uses materials and equipment that are readily available and cost little. Cornell forestry specialists are now beginning to explore the possible use of this treatment to protect fenceposts against underground pests and harmful bacteria.

Experiments conducted by Ayers at the Woods Hole Oceanographic Institution at Woods Hole, Mass., show that lumber so treated remained completely free from marine borers and gribbles after some 2½ years in heavily infested waters, while untreated lumber exposed for the same period was completely destroyed.

The new treatment consists of soaking lumber which has been cut to size in solutions of inexpensive technical grades of copper sulfate and sodium hydroxide. This precipitates copper hydroxide into the fibers of the wood. The wood is then rinsed several times in water and dried air dry. When it is put into use and comes in contact with the sea water, a toxic layer of basic copper carbonate is produced on and in the surface of the wood.

Since the new method protects the wood to a depth of only about one-sixteenth inch, it is best used on structures not subject to heavy battering which might expose untreated areas deeper in the wood. Structures subject to light battering can be protected by using treated bumper strakes and corner trim. Structures made of wood treated by this method need brass or copper fastenings because the copper salts speed the corrosion of iron, and the iron, in turn, acts on the salts to prevent their beneficial effects.

So you've had trouble with hurricanes?

This craft, anchored a half mile out in the bay off Southampton, was floated and blown on the high water by the hurricane of 1938—and came to rest in its owner's backyard

Yes, but it's a doe

Arthur E. Bill of Rensselaer Falls, is shown here with the six-point *doe* which he took November 11, 1954 in Franklin County. Many a buck taken during the past season sported a better rack; so far as we know, Mr. Bill holds the record for an antlered doe.

Department Game Biologists state that such phenomona can be attributed to hormone abnormality; comparable, in humans, to the bearded lady of the circus. During the average buck season, with a reported kill of from 25,000 to 30,000 deer, six to ten will be antlered doe but seldom, the biologists say, will does produce such well developed, symetrical racks as Mr. Bill's trophy.

Junior hunters in Michigan

The following is taken verbatim from a news release recently issued by the Michigan Conservation Commission:

"Teen-age hunters are well on their way again this year to being the most dangerous group afield. To date in Michigan's month-old hunting season, five youngsters have been killed and 19 wounded. In comparison, four adults have been killed and 49 wounded. Most of these accidents have been self-inflicted wounds or wounds inflicted by other members of the hunter's party.

"No person under 17 years of age may purchase a hunting license without written approval of parent or guardian, but this year about 100,000 youngsters have received such approval. Parents who sign affidavits allowing their children to buy and use hunting licenses have a legal responsibility to see that an older person always hunts with the youngster."

Setting the record straight

The undersigned did perhaps unwittingly create the following wrong impressions in the article entitled "New York Fur-Bearers" in the December-January issue of THE CONSERVATIONIST.

A. The beaver in New York are not the dwarfs which a typographical error indicated. The pound weight should have read 12-70 pounds, rather than 12-20.

B. The food items listed under the various species represents only *some* of the items eaten, not all.

C. The price quoted for a fisher pelt is for a very good quality female fisher. The coarse-haired pelt of the male is worth considerably less.

D. Raccoons prefer "den" trees, but will set up housekeeping in ground burrows, cliff crannies, etc. if no hollow trees are handy.

E. The rabbit listed as food for the fisher is the snowshoe rabbit or the varying hare. Cottontails do not frequent the range of the fisher.

F. Grey foxes *do* climb trees—of that there's no question. But whether they shinney up trees in bear-like fashion is something else. Some authorities — Drs. Hamilton and Palmer for example—say they do; other say "tain't so." Personally we've never seen one in the act.

G. Muskrats have many natural enemies, among them mink. The muskrat population level is not, however, materially effected because of mink predation.

—H. WAYNE TRIMM

Cold River area opened

With the coming of heavy snows to most of the Adirondack region, the Cold River section of the woods, closed because of the fire hazard resulting from the hurricane of 1950, has again been opened to public use. But it is pointed out that opening the area to unrestricted public use must necessarily be on a temporary basis only, since the forest fire

hazard has not been materially reduced, and with the advent of the spring fire season it may be necessary to close some of the area again in order to give these public lands the fire protection they should have—in view of the danger involved.

In addition to the opening of the Cold River area, all other trails on State lands in the Adirondacks which have been closed during the past fire season are now open to public use.

Department Foresters advised, however, that the Slant Rock and the Hopkin trails in the Mount Marcy area are almost impassible; heavy snows in this area have made it impossible to clear timber downed this fall by Hurricane Hazel, and use of the Ranger trail as an alternate is recommended. It is expected that Department crews will have these trails open before the 1955 hiking season.

Forest pest control meeting

Despite significant improvement in forest pest control methods and equipment, more trees are being killed today by insects and diseases than by forest fires—and the trend is steadily upward. This somber note was the principal theme for discussion by the Committee on Insects and Diseases, New York Section, Society of American Foresters at its December 10 meeting at the College of Forestry in Syracuse.

The Committee, representing various state and federal research agencies, functions to aid the New York State Conservation Department and private tree owners in problems dealing with forest pest control. Subject to annual surveys of the status of forest disease and insect pests in New York by the Conservation Department's Bureau of Forest Pest Control, this Committee acts as a research clearing house in discussing trends and control measures.

William O'Brien

Death came to another pioneer in forest fire control work in 1954 when William O'Brien, retired Supervising District Forest Ranger, succumbed at 85 years of age at his home in Canton. A veteran in the service of the State when he retired in 1939, he represented the last link between modern practices in forest fire control and the work begun in 1909 following passage of legislation which placed with the Department the responsibility for control of forest fires in the Adirondacks and Catskill forests. He became Supervising District Forest Ranger in 1928 after eleven years with the International Paper Co., and prior to that was District Forest Ranger.

As with Bert Camp, whose death was reported in a recent issue, in his latter years of service Bill O'Brien devoted much time and thought to the mechanization of the forest fire fighting forces of the State, and these forces are that much stronger therefor.

Corn, beans, and bears

For the following item we are indebted to Roberts Mann, Conservation Editor for the Forest Preserve District of Cook County (Chicago, etc.) in Michigan. He conducts a very lively and informative mailing service which we have used before.

"In 1792, in Philadelphia, was published an interesting account of three years of travel by a Capt. Jonathan Carver, in the Northwest Territory. He observed that the Indians boiled wild rice; ate the flesh of bear, buffalo, elk, deer, beaver and raccoon; roasted or boiled the 'dry' flesh of deer together with the fat juicy flesh of bear; had no milk but drank the broth of boiled meat; and made no use of salt or spices.

" 'Whilst their corn is in the milk, as they term it, that is, just before it begins to ripen, they slice off the kernels from the cob to which they grow, and knead them into a paste. . . . They parcel it out into cakes and enclosing them in leaves of the basswood tree, place them in hot embers, where they are soon baked. And better flavored bread I never eat in any country.

" 'One dish, however, which answers nearly the same purpose as bread, is in use among the Ottagaumies, (the Foxes), the Saukies, and the more eastern nations, where Indian corn grows. . . . This is composed of their unripe corn as before described, and beans in the same state, boiled together with bear's flesh, the fat of which moistens the pulse and renders it beyond comparison delicious. They call this food Succatosh'."

Trudeau

THE Adirondacks mean many things to many people—hunting and fishing to the sportsmen; camping, hiking, swimming, canoeing, boating to the recreationists; to the conservationists, water, soil and forests. And since 1884—to some 12,500 persons—the Adirondacks (and a certain sanatorium) have meant the conserving and rehabilitation of human lives.

The healthful climate of the Adirondacks has played an important part, along with medical science, in combatting the disease known as tuberculosis. That climate and medical skill have in no small measure been successful is found in the announcement of the closing of the Trudeau Sanatorium at Saranac Lake, oldest semi-private institution in the Nation for the care and study of the tuberculous and pioneer of modern TB therapy; the Sanatorium is closing because patients are so scarce.

Discovery of new drugs and surgical methods which shortened the length of sanatorium care and which have made home and out-patient treatment possible; decline in the number of relapses and reinfections after the use of drugs; mounting costs of operating a place like Trudeau; increase in popular education about the disease and techniques which detect the disease in its earliest stages; and the increase in state and Federal institutions for the general public and for veterans (free care) are given as reasons for the decrease in the number of patients at Trudeau.

The Sanatorium was founded 70 years ago by Dr. Edward Livingston Trudeau, himself a victim of the disease. From the well known "Little Red Cottage" on the slopes of Mt. Pisgah, his Adirondack Cottage Sanatorium grew to 90 acres and 52 buildings with a capacity for 180 patients. But a falling patient census has had Trudeau with fewer than 70 patients in recent months. The name of the Sanatorium was changed in 1915 (after Dr. Trudeau's death) to Trudeau Sanatorium.

Its closing as a sanatorium brings dislocation to a large staff, an economic impact on Saranac village from loss of a half million dollar a year payroll, and the need to find other uses for the hillside acres and buildings. However, as Dr. Francis B. Trudeau, son of the founder, said:

"My father would look on the closing of Trudeau Sanatorium as a victory and would be happy to know that new drugs and surgical methods seem to have outmoded the type and quality of care which Trudeau Sanatorium supplied. He would be proud to know that his institution has had some part in helping to reduce the death rate from tuberculosis in America. . . ."

The Saranac Laboratory and other laboratories in the research division of the Trudeau organization are not affected by the closing. They will maintain and expand their studies on various lung diseases and will continue research on industrial dust diseases. The Trudeau organization has an endowment which it can use to continue pulmonary research, or for study in other fields of medicine.

We who are so keen about any therapeutic value the Adirondacks have to offer, like to recall the words written by the founder, Dr. Trudeau, in our fourth annual report of the Commissoners of Fisheries, Game and Forests, 1898: "We have also learned that climate is only one of several elements which may be utilized in the treatment of this disease, and that the principal factors which, in addition to climate, contribute to the cure of consumptives are an open-air life, rest, good food, and the regulation for months of the patient's daily habits of life as to exercise, diet, etc. All these conditions are best obtained in an institution built and carried on for this special purpose and situated in a good climate."

We especially like that good climate part.

—ROLAND B. MILLER

LETTERS

To The Editor

Democracy in action

Dear Editor: This is an account of a Forest Ranger who was determined to vote on Election Day—let come what would. He is James Lawrence, stationed at West Canada Lakes —one of the most remote and isolated areas in the Adirondacks.

At 7:30 on Nov. 2, 1954 (Election Day) Clyde Diedrich, Jr. and his brother, both of Piseco, flew in to West Canada Lakes in an Aeronca Sedan float 'plane to pick up some hunter's equipment. They decided to give Ranger Lawrence a lift out to vote. The take-off was in clear weather, but after flying a few minutes a heavy snow squall came up and they decided to return to West Canada Lakes. But as visibility was about zero they became lost. Finally an opening appeared showing a clearing below—and not very far below. They headed for it and made a crash landing. Luckily no one was injured but the wings and pontoons were considerably damaged.

When they climbed out they didn't know where they were, but they were not far from a river which Ranger Lawrence thought was either the Indian or West Canada Creek. After walking for a while he decided correctly that it was West Canada Creek at about Second (Mitchell) Stillwater. The three of them made their way eight miles through dense woods (as there was no trail) back to the West Canada Lakes Ranger Station, arriving there at 1:30 p.m.

After being given sandwiches and coffee by some hunters camped nearby in a lean-to, they started out again on foot to the Cedar Lakes Ranger Station about eight miles away, by trail. Luck was with them; when they approached the head of Cedar Lakes they met Ranger Robert Barton who was working on the telephone line. He took them the rest of the way in his boat to the Cedar Lakes Station.

After more sandwiches and coffee, Ranger Lawrence said that he had started out that morning to vote and he'd be darned if he would quit then. So at about 4 p.m. the three again took to the trail for the remaining fifteen miles to Speculator. They had covered about three miles when they met Mrs. Ann Telfer with her jeep, who got them to Speculator just in time to vote.

Fred Fohrman, District Ranger, Northville

Hawks for Colorado

Dear Sirs: Please send THE CONSERVATIONIST for one year to Toponas Grasslands Conservation Assoc., Toponas, Colorado. This association is interested in protecting beneficial hawks, and I thought they would be interested in Wayne Trimm's color plates in the Aug.-Sept. issue. If it is possible to procure copies of these color plates, in larger size, they would be much interested to know about it.

Here at the western office of the Izaak Walton League, where I am working at present, we have had inquiries from this association of ranchers as to how they could procure color pictures of hawks. I do not belong to the association but am interested in the work they are trying to do.

Margaret E. Murie, Denver, Colo.

• *We can supply the magazine, but not the enlarged reproductions. We don't have enough money to make special reproductions of any of our color work, and all we can offer is an additional copy (at 25¢) of the issue in which such work appears.—Editor*

Sniff sniff, zoople zoople

Dear Editor: I breed Dachshunds and also hunt with them. When I tell about hunting with little dachshunds some people seem to doubt their being much good, so I hunted this year with an old timer for proof. This is what my dogs did:

They put up twelve cock birds, jumped and circled fifteen rabbits and two foxes. We got ten birds, nine rabbits and both foxes. My oldest dog flushed two birds in a field where a German short-haired pointer had hunted just ten minutes before.

Ray Gendreau, East Syracuse

Not length, but strength

Dear Editor: Will you be so kind as to inform me how long a long bow must be to hunt big game?

Edwin L. Pendleton, Rochester

• *No prescribed length. But it must have a minimum pull of 45 pounds.—Editor*

Just chaff, the man says

Dear Editor: My sons and I, hunting in the vicinity of Panther Mountain in Ulster County the first week of the present deer season, found the enclosed tinsel-like objects throughout the woods wherever we hunted. We were wondering if you could tell us what they are; also their origin. We have found the same objects here in the mountains at Grand Gorge.

Any information will be greatly appreciated.

T. W. Davis, Grand Gorge

• *We suspected that these "tinsel-like" objects had something to do with Air Force radar experiments, and so wrote to the appropriate authorities. The result follows:*

Dear Sir: The tinfoil is indeed used in radar work: Called "chaff," it is the same material dropped from bombers in World War II to block and confuse radar installations on the ground.

Chaff, incidentally, is not harmful to game or livestock. Cows, we are told by the University of Maine's agriculture department, display commendable discretion and rarely if ever eat it.

Joseph N. Morgenstern, 2nd Lt., USAF, Syracuse Air Force Station

Albino pheasant

Gentlemen: Enclosed please find a picture of Bob Stewart, Cheektowaga, N. Y., holding an albino hen pheasant which his dog caught while pheasant hunting near Middleport, New York, this past season.

Evidently the bird had been hit slightly by bird shot by a hunter earlier in the day. However, upon the advice of Game Protector Maurice O'Brien, the bird was placed in a chicken coop on this nearby farm, and, to this date, is progressing very favorably.

Mr. Stewart is to be commended for reporting this to the Department. We wonder how many such birds are seen during the year?

Bob Stull, Cheektowaga

• *Not many. But we get a few reports of albino pheasants each season.—Editor*

More woodchucks for dinner

Dear Editor: I'll be very glad to "go out on a limb" to help people enjoy the meat of the woodchuck

After skinning and cleaning, soak meat over night in a mixture of a cup of salt to a gallon of water In the morning place meat in a large kettle of boiling water, bring back to a boil, add one teaspoon baking soda, boil for 10 minutes, drain. Place meat in a roasting pan with a little water to make a gravy. Roast at 350 degrees, basting often, and (depending on size of animal) from 2 to 3½ hours will cook it.

Another way is after boiling, cut up meat into serving pieces. Brown in a Dutch oven or heavy skillet with two tablespoons bacon drippings, add a cup water and salt, pepper to taste. Simmer over medium heat until a fork will easily pierce the meat.

One must add a little water as needed and again the cooking time depends on the size of the animal. When meat is done remove from pan and make a brown gravy from the broth by adding a cup flour and two cups water mixed to a smooth paste. Cook over medium heat to desired thickness.

Both of these methods may be applied to 'coon and 'possom—also rabbit and other small game.

Mrs. Bert W. Scott, Sr., Preble

On land posting

Dear Sir: From time to time I have read letters and articles in your wonderful magazine on the pros and cons of Land Posting. The writer, a non-hunter, is strictly neutral in this matter and can sympathize with both the hunter and the landowner. But something has happened on our road in the past five years that I think will throw a different light on this touchy subject.

Here is my story: About ten years ago I bought some extensive woodlands in Cattaraugus County. Our road is about ten miles long and the first three miles on the lower end is taken up with about twelve dairy farms. The upper seven miles is almost solid forest, some of which is State-owned. Ten years ago there were five large parcels of land in this seven-mile stretch, none of which was *posted.* About five years ago a group of men purchased about 300 acres, built a hunting shack and promptly posted the property. The following year a small family bought over 500 acres and rebuilt the old house. When I asked them why they decided to live in such a remote place they explained that they were ardent hunters. The following fall another 500 acres was posted. Last year the remaining two sections of land were purchased, one by a hunting club (you guessed it, it is now posted) the other by a logging company which stripped off the timber last year.

Last Saturday (and this is what prompted me to write this letter) three hunters were hunting partridge on my property. On their way toward the road I noticed them tacking signs on the adjacent property along my line. In discussion with them I found out they had just purchased the land from the logging company the day before. Here they were, hunting partridge on my open land and posting their own woodland for the coming deer season. So today the land along our road—which six years ago was entirely unposted—is now completely posted except for the State land and that belonging to the writer. Not posted by disgruntled farmers, but by hunters themselves.

Apparently this indicates a trend: Due to the amount of posting, hunters are purchasing their own land. But somehow it doesn't seem morally right that the minute a hunter becomes a landowner he should prevent other hunters from doing the same thing he enjoys.

I am still neutral.

L. A. Brooks, Buffalo

• *We are still neutral too—but understanding and sympathetic. We must admit that we have no ready remedies.—Editor*

A market log

Editor: In your Oct.-Nov., 1954 issue, page 29: "Immense load of logs hauled at Speculator. The estimated number of feet in the load is 35 markets. A lumbering term meaning a log is 16 inches in diameter at the small end and 13 feet long."

A friend of mine, Harold Casey (who has cut a lot of logs) claims that a market is 19 inches on its small end and 13 feet long.

Arthur K. Robson, Amsterdam

• *Mr. Casey is correct; such a log by definition is 19 inches inside the bark at the small end, and 13 feet long. By Scribner Rule, it is supposed to contain 195 board feet.*

But in the magazine we reprinted the story just as it came from the newspaper.—Editor

Built to take it

Dear Sirs: The enclosed picture is evidence of the strength of the Adirondack lean-to! I thought you might be interested in this shot. I took it at the Scott's Clearing lean-to a few days after Hurricane Hazel visited the area. There were many blow-downs around the lean-to, and up and down the trail to Rocky Falls and Indian Pass.

From now on I know where the safest spot is when another big blow comes.

Francis H. Whitcomb,
Lake Placid

Starting a fire

Sir: Your Forest Rangers evidently don't read their own fire prevention circulars, or else they don't believe their own propaganda.

Obviously, the way to start a fire with one match in the circumstances described in your December-January issue is to light a cigarette with the match and then throw the cigarette away.

Charles S. Ascher, New York City

Dear Sirs: Read the suggestions of your fire makers and wish to remind them that this is supposed to be a modern age. Suggest they put away their bows and arrows and stone axes; after they find their "fat" wood and "lean" wood also, for that matter. I'll bet 90 per cent of your readers would freeze to death looking for "fat" wood—it might be five miles away.

A very small bottle of chain saw gas (gasoline and motor oil) mixed and any old rag will start more fires than all your remedies. Practically any dead wood will burn. Also don't overlook the fact that the 86.8 proof carried (externally) by some pioneers makes a beautiful blaze.

Wm. I. Armlin, Jr., Middleburgh

Dear Sir: Have been reading the article about starting fires. Along with this letter you will find three *Stedy Flames* which are used to start fires under adverse conditions.

If it is raining or there is snow on the ground the *Stedy Flame* is held in the hand while being lit. In about a minute you will have a good flame. The *Stedy Flame* is then placed on the ground and the kindling placed over it, and in no time a good fire will be blazing.

The device can be purchased for $1.24 per doz. or $2.08 for 2 doz. from Q Products Co., 428 So. Salina St., Syracuse, N. Y.

O. Henry Quantville, Syracuse

The waste of venison

Dear Sir: This deer season, as in others, I have heard about a good many doe deer being shot and left in the woods.

I know that some of these are picked up and delivered to county farms, hospitals and other institutions, but there must be a much larger percentage left in the woods and wasted. I do not believe any number of additional Game Protectors or other enforcement practices would greatly reduce this waste, because an unscrupulous hunter can shoot a doe and deny he did it—and it is usually almost impossible to prove that he did.

I have thought of a system which might reduce this waste. It is similar to the Pennsylvania system, whereby a violator may report his violation to a Game Protector and be fined $25—or not report it and take his chances on a much larger fine.

I doubt if a $25 fine would be very effective in reducing the number of illegal deer left in the woods, especially if the State confiscates the deer. But I think if there was a $10 or $15 fine for shooting an illegal deer, and the violator were allowed to keep the deer, but not allowed to hunt any more for the season, there would not be the great waste there is now. I mean of course that the $10 or $15 fine would apply only when the violator turned the deer in to a Protector and had it stamped or otherwise marked. If deer was not turned in, the violator would be subject to a heavy fine if apprehended.

I can see several objections to this plan. The small fine would encourage the wealthier hunters to shoot the first deer they saw, but I believe there is considerable hesitancy on the part of most hunters in shooting does, and there is certainly less glory attached to shooting does. It would also put the State in the position of selling deer, but maybe that would cut down on the next increase in license fees that somebody is probably thinking about.

I just thought it might give you guys in the Conservation Department something to argue about on blustery winter days.

Howard W. Pierce, Norwich

• *We agree that the situation is bad, but, as to the solution which you suggest, I think that you yourself have advanced the best arguments against it; if we were to permit a confessed violator to possess a deer by paying a nominal fine, then many people would consider it well worth the ten or fifteen dollars to go out and shoot a doe and then report the act to a Game Protector. But thanks for your constructive thinking.—Editor*

A point of law

Dear Sir: I'm sixteen years old (or will be on October 7th) and am getting a 65 lb. longbow for my birthday. Dad and I have been having an argument about the law to hunt deer and bear without previously holding a big game license: You must have with you a person over 21 who is a holder of a big game license. I say this particular law doesn't pertain to archery hunting for deer and bear. Dad doesn't agree. Who's right? If Dad is right, must he buy a special archery license in order to hunt with me?

James Martensen, Germantown

• *It looks as though Dad is right (aren't they usually?)*

Section 185 of the Conservation Law, subdivision g says: A license to hunt deer and bear issued to a person under 18 years of age who previously has not had such a license issued to him and engaged in hunting thereunder, should not entitle such person to engage in hunting such game unless accompanied by his parent or legal guardian, or by a person over 21 years of age who has had at least one year's experience in hunting deer and bear. No person shall hunt deer or bear, or assist or accompany another in such hunting, unless at such time he shall have on his person the license required by this article.

This applies to all licenses. So it looks as if Dad must also have an archery license if he's going out with you during the archery season.—R. B. M.

Water chestnut

Dear Sir: In your Aug.-Sept. issue, there was an article on water chestnut, and you asked that if any was found in waters not listed in the article, to report it. For two years there have been small patches of chestnut in Red Mill pond in the Town of Claverack in Columbia County. I have pulled all the chestnut out but it seems to come up again.

Everett Mack, Claverack

• *Thanks for the information. We have passed it along to the proper authorities.—Editor*

Sockeye

Dear Editor: I notice on pages 8 and 9 of your paper (April-May, 1954) that the photographs show kokanee with *spotted tails.* It is an odd fact that though I have seen and handled so many sockeyes, both anadromous and landlocked, I have never seen, or at least noticed, one with a spotted tail. Can you tell me if that is usual in the New York sockeyes?

T. Brayshaw, Hope,
British Columbia, Canada

• *The specimens photographed were mature, breeding fish. According to our Aquatic Biologists, such spotting is characteristic of the sockeye in this stage—at least in New York.—Editor*

Another freak

Dear Editor: I have seen many odd and interesting pictures published in THE CONSERVATIONIST, but I think I have something different. It is a buck that was shot through the side up here in Sullivan County.

The right antler was still in velvet and grew down over his eye and rested against his mouth. The left antler was fully developed.

Don. Sarles, Livingston Manor

More coyotes

Dear Sirs: I am enclosing a negative showing two of the eight coyotes I caught within half a mile of my cabin on Shattuck Clearing in the fall of 1954. I opened stomachs of four, and three of them had been feeding on venison.

Ranger Lucius Russell, Long Lake

Seth Green and the sawbelly

Dear Sir: In the February-March, 1953 number of THE CONSERVATIONIST you published a letter I wrote you about the Seth Green fishing rig. I'm writing this to tell you about another circumstance that happened about the same time Mr. Green introduced his famous rig.

According to all accounts Mr. Green was a doer, not a dreamer, and after several fishing trips to beautiful Lake Keuka to fish for lake trout, he concluded that there should be more trout food in the lake and took measures to bring such a condition about.

Not too long after Mr. Green introduced his rig, or about 1879-1880, while my father, Alonzo W. Springstead, was still building boats at Hammondsport, several dependable fishermen whom he had known during his previous residence there, in response to his inquiries about the silvery white herring-shaped fish he had noticed in the lake, told him that about ten years previously Mr. Green had gone to Baltimore and, hiring a fisherman with a good sized boat to take him out into Chesapeake Bay, netted a quantity of alewife (sawbellies), placed them in some large hogsheads, put them on the train that night and had them shipped to Watkins and Penn Yan, both located on the lines of the then Northern Central R. R.

He had arranged with several fishermen at Watkins to take half of the live sawbellies and place them carefully in Seneca Lake. The balance were taken on to Penn Yan where they were carefully placed in Lake Keuka.

I have never heard of any other stocking of sawbellies, before or since, but that small stock has increased immensely in both lakes as well as in Cayuga Lake.

Theorizers have an idea that the sawbellies went from the Atlantic into the St. Lawrence, then up the Oswego River into the Finger Lakes, but there's a hole in that theory: Why didn't the sawbellies get into Owasco, Skaneateles and Canandaigua lakes?

The late Prof. E. H. Eaton, who supervised the lake end of the survey of the Oswego River Watershed in 1927, says on page 44 of his reports that he could find no record of sawbellies having been introduced intentionally; but residents of the section told him they had been present in all three lakes for the previous 50 years. He also states they are not the remnant of a post-glacial invasion from the sea, nor migrants by way of the Oswego River, before the dams were constructed, for they should certainly have entered Canandaigua and Owasco lakes with equal ease. He further states that their appearance in Lake Keuka was placed by residents of the section about sixty years ago—and this would jibe exactly with what my father told me. So the fishermen in those lakes owe another debt to good old Mr. Seth Green.

In the 80-odd years since Seth Green stocked the sawbelly in the two lakes mentioned, they have worked their way down into the Canal and Cayuga and Oneida lakes and also Cross Lake, and it is a foregone conclusion they worked their way downstream into Lake Ontario.

I'm probably the last person who has any direct knowledge of what really happened. I celebrated my 76th birthday Sept. 4th, 1954, and I feel that this information should be made a part of the permanent records for the benefit of future fishermen and biologists.

G. A. Springstead, Geneva

• *Thank you, sir.—Editor*

Antlers, not horns

Dear Editor: *Horns* or *antlers*, hollow or hard? Game syllabus: "3" *antler* minimum." Big Game Tag Report: "Number of points, left *horn*," etc.

Your nickel, go ahead. (The magazine is tops.)

Don Russell, Corning,
Fault Finder No. 999

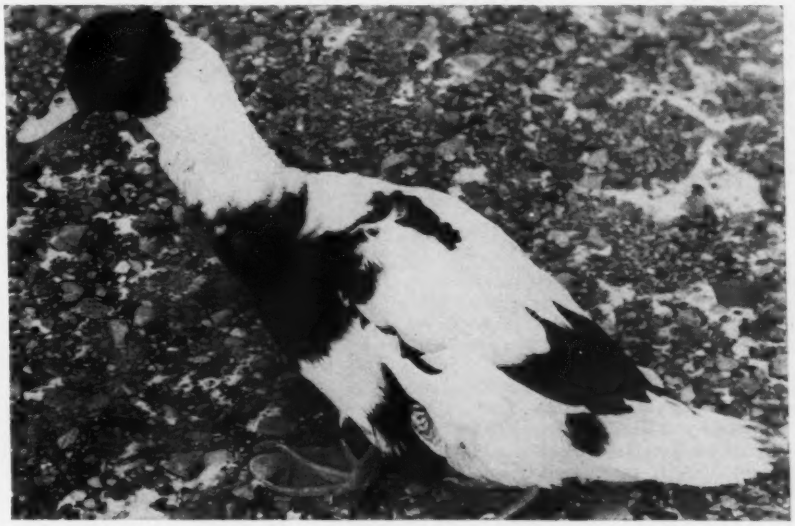
• *You've got a point.—Editor*

Bear kill

Sir: We have had quite a dispute on the number of bear killed in New York the last five years, and size and weight.

Joe Bobines, Amsterdam

• *We have no figures on size and weight, but the reported take is as follows: 1949, 170; 1950, 197; 1951, 84; 1952, 132; 1953, 295. Total for the five years, 878.—Editor*



All right, so what is it?

Sir: Enclosed is a photograph of a duck which stopped off at George's Marine Supply in North Troy when the ducks were flying south about 5 weeks ago.

This duck comes to George's every morning about the same time because he is being fed. Each day he has gotten tamer so that I got close enough to take this photo. I would like to know what kind of duck it is.

William Mickiewicz, Cohoes

• *Well now, let's not rush into a decision on this. The beast appears to have developed a bay window and down-at-the-heels attitude characteristic of a domestic pekin or muscovy, but it also has some feathers characteristic of wild waterfowl. The expert in the office next to ours claims that it's a cross between a puddle duck and a skunk. Elsewhere in the Department the consensus is that a barnyard muscovy fell in love or otherwise got mixed up with a travelling mallard, or something—and this is the result.—Editor*

Woodchuck with tusks

Dear Editor: Am sending a photograph of a woodchuck shot in Washington County. You will notice his lower teeth touch his nose. He was unable to close his mouth. His upper teeth touched his lower jaw and curled up into the roof of his mouth.

He was shot in October.

Enoch Miller, Troy

Trout for Master Wilcox

Dear Sirs: I would like to know if you would stock Orowoc Creek at the Western Branch in Islip. It hasn't been stocked in the last five years. Not many people go fishing there anymore, since there isn't fish left in the brook. It's fairly good size and plenty of places to hide. Many a time I built dams and brush piles for them, but then the Mosquito Control comes along and throws everything up on the bank. If you could give me a pass or something so I can take it down to the town hall. I've built fenced off places in the brook so we only can let so many out each month, but they bust them up too. If I can only have your permission, would like to go on with my work. The stream is located off Sunrise highway, between Griffin St. and Grant Ave. If you stock it would you throw in a couple of big ones?

Thank you for your troubles.

Master Oscar Wilcox, Islip

• *Dear Oscar: It's always a pleasure to get a letter from such an enthusiastic young fisherman as yourself. It shows, too, that we have a good sportsman and real conservationist coming along in the Islip area.*

You will be interested to know that Orowoc Creek, including your favorite stretch, is on our regular stocking list. Trout are planted every spring. Last year, for instance, over 200 nice brookies—all legal size—were planted in the Orowoc stream system.

Perhaps you would like to assist in the stocking this spring. I'll have Mr. Edward White, in charge of the hatchery at Cold Spring Harbor, let you know when the stocking will take place. That's our busiest season—the hatchery will have 200,000 trout to distribute—but I'm sure Mr. White will make a special effort to let you know a few days ahead of time. And, knowing Ed, I have a feeling there will be a couple of big ones on the load.

About those dams you have been building: I can understand your disappointment when they are pulled out, but I guess we will just have to face the fact that in such a heavily-populated area, mosquito control is pretty important to a lot of people. The Conservation Department has no authority to give you a permit such as you request, but, perhaps, if you make your stream improvement dams very low, they will not be disturbed by the Mosquito Control folks.

At any rate, your good work must be paying off. Last August, we made a survey of Orowoc Creek. As you may know, we use an electric shocking machine to sample the fish population and on Orowoc turned up some mighty nice trout which any fisherman would be glad to catch. The study showed that nature is also helping out because we found numerous brook trout fingerlings, the result of natural spawning.

So thanks again for your interest and help. Sometime when I'm in the Islip region, I hope you will take me fishing with you.—Cecil E. Heacox, District Fish Manager

Season on hen pheasants

Dear Editor: Will appreciate if you can tell me if there has been an open season on hen pheasants in this State. Some "old timers" say that years ago there was a four-day open season. Are they correct?

Rile Prosser, Editor,
The East Aurora Advertiser, Inc.

• *In 1909, by inference, there is a record of an open season on pheasants which permitted killing birds of either sex. We quote from the Annual Report of the Forest, Fish and Game Commission for 1909:*

THE PHEASANT RECORD

"Section 96 of the Game Law provides that hunters in certain counties therein named must file before November 30th a statement showing the number of pheasants killed, together with the sex, and the town and county where taken."—Robert Perry, District Game Manager

Overseas

Dear Sirs: The Committee of the Permanent Exhibition of foreign scientific and vocational literature at the Rectorate of the University of Zagreb beg to express their best wishes for the New Year 1955.

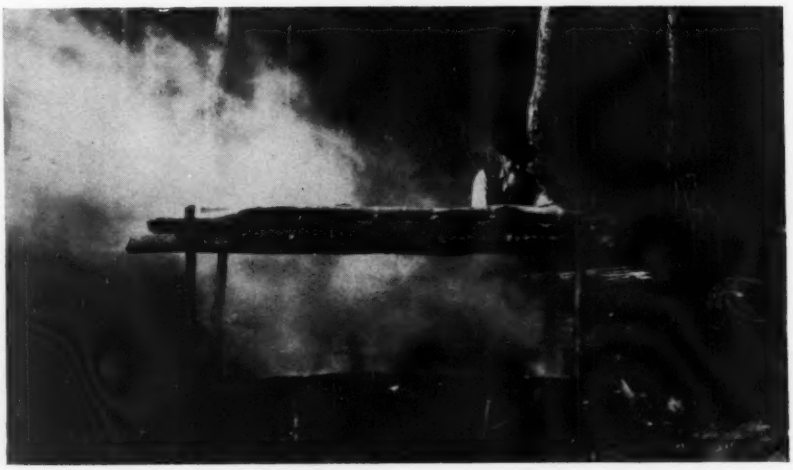
At the same time they thank you most sincerely for all that you have done so far for the Exhibition and would ask you to support them in their efforts in the future too to the greatest extent possible.

Secretary of the Committee,
(Univ. Prof. Dipl. Ing. Alfred Heim),
Zagreb, Yugoslavia

Veneer

Gentlemen: I was very pleased to note the mention of our veneer plant at Lowville, N. Y. in your current issue on page 23. This plant has been in operation in the Lowville area for many years—turning out birch veneer for school desks all over America.

R. L. Johnson, Syracuse



Out of the past

Dear Sir: This photograph of my father, Warren Humes, was taken in 1910 near our former log cabin at Maple Hill, located about 20 miles above Harrisville on the Oswegatchie River. It shows father smoking venison on what we called a "jerking rack" and I believe that when it was taken he was turning the strips of meat over—or he may have been putting additional coarse hemlock bark on the fire underneath. In any case, such smoking is a process requiring almost constant attention over a period of at least 3 to 4 hours.

Father was 80 years of age at the time the picture was taken, having been born in 1830 where the Village of Philadelphia, N. Y. is now located. In later years my father made several trips on foot through the then unbroken wilderness to Warren County, and on one of these journeys in the late '40's he told of having seen several moose. And of course wolves and panthers were fairly plentiful then.

Father made his living by hunting and trapping and making maple sugar for nearly 50 years. He never resorted to the dogging of deer and had a reputation of being the best still hunter in the Harrisville section. He died in 1916. It was well known 50 or more years ago that he shot in his lifetime over 4,000 deer, 250 bears and wolves, and in the early '60's some panthers.

Burton Humes,
Watertown

Small deer

Dear Friend: What I do not like about the special season this year and have heard others kick about it is the killing of fawns that weigh only 50 or 75 pounds; that is too small and that is my kick. (How about a report on the deer hit by autos on the road?)

Arden K. Haynes, Piseco,
Justice of the Peace

• *The trouble is that in some areas where such a season was held, many deer don't get much bigger than that. Please see article on page 25.*

Also, how would it be possible to distinguish, in law, between a fawn and a doe? And providing that such a distinction could be made, how could the law be enforced? —Editor

How far North can you get?

Dear Editor: I'm remitting to you $1 for a year's foreign subscription, a gift subscription for the following: Mr. Yruo Kokko, Enontekio, Suomi, Finland, Europe.

If "Enontekio" doesn't strike a significant note, please allow me to point out it is in Finnish Lapland, in about 68½ degrees north latitude—possibly your farthest north subscriber?

Alarik Walton, Jamaica

• *He's pretty well up there all right, but we have at least one G.I. subscriber who can look down on him. He's with a radar outfit pretty close to the North Pole.—Editor*

Publicity about hunting

Dear Editor: I have taken THE CONSERVATIONIST for about two years, and in the two years of my reading, I have not seen much hunting material on the counties of Niagara, Erie, Genesee, and Orleans. I know that it is not great deer or bear country. But we do have good pheasant and rabbit hunting. We are not overrun with squirrels, but have enough to keep it interesting. I'm sure that many other hunters would like more information on these counties.

Robert Albright, Newfane

• *As a reader of the magazine, you are well aware that most of our publicity concerning hunting has to do with Forest Preserve counties where there is much land open to the public, and where hunting pressure is often too light for the good of the species present. In your section of the country, however, it is our impression that the less publicity given hunting, the better. Most of the complaints from your section have to do with excessive hunting pressure and limited quantities of game—and we would not want to do anything to aggravate that situation.—Editor*

Fishing licenses

Dear Sir: The question is: If a person owns all of the shore line about a lake or pond in New York State and posts his land against trespassers, may he allow anglers that he has invited to fish without their having a New York State fishing license?

Jonathan Bass, Tuckahoe

• *No.—Editor*

Alibi department

Dear Sir: For the past two years, I have been a follower of the bow and arrow clan. I've done my share of standing, stalking and plain sneaking, trying to get my buck or doe during the bow season. I saw little or nothing —but when the regular hunting season arrived and the deer were put in circulation—then things began to happen. Fourteen deer seen this past season, stood for, stalked for, and successfully up to a point. But that was it—nary a point—all does. Two seasons with no gun, and I'm still going to rest the gun a third.

I am enclosing a cartoon I drew up this evening which will give anyone interested in archery an example of a bow hunter's brand of passing off a miss. Guns or arrows, we aren't much different in the alibi department —except we alibi more often.

William Calhoun, Ausable Forks

More about panthers

Dear Sir: I have recently returned from a hunting trip in Hamilton County and while hunting in the Lake Pleasant area, just north of Sacandaga Lake and east of Mud Lake, I observed two animals walking along an almost inaccessible ledge some 150-200 feet above the ground which were not identifiable by me. I was quite sure they were members of the cat family, however. Upon describing them to my hunting companions they were tentatively identified as cougar. Since then I have studied pictures—both still and moving —of this animal and I am quite sure that it was cougar that I saw. The year around residents, however, assure me that there is no such animal in that area.

Could you tell me if the cougar has ever been reported in that area in the past and if so, has one ever been taken?

J. H. Curry, Ridgefield, Conn.

• *We refer you to an article about panthers which appeared in the June-July, 1951 issue of this magazine.*

Panthers are big animals; average weight about 150 pounds, length about eight feet (including tail). The last bounty on an Adirondack panther was paid in 1894, and the last authenticated record of the species in this State is almost as old. There is always the possibilty, however, that the panther (puma, cougar, mountain lion, etc.) may return to New York—as he returned to the Province of New Brunswick a few years ago. But biologists will want to see it to believe it.—Editor

Furs and fur prices

Sirs: In your Dec.-Jan., '54 issue, you describe the various furbearing animals, pelt prices, etc. in N. Y. S. Since I trap considerably, I naturally was interested in the pelt-prices you quoted, and find myself in agreement with most of the prices for the different furbearers.

The beaver prices you quoted, however, are an entirely different matter. In the spring of 1953 I sold 12 beavers, perfectly stretched and dried, none under 45", 3 of them almost blankets, for $96; average $8 per. The spring of '54, I sold 10 beavers (the sizes matched the previous spring's catch) for an average of $5.60.

I'll give you half of my catch next spring if you give me the name of any furdealer in N. Y. State that will pay $18, as you stated, for an average skin (beaver). Since your article states that beaver weigh 12-20 lb. (average, I assume) all beaver I caught were above the average, since a 45" beaver pelt comes from an animal that will weigh about, or at least, 20 lbs.

Michael P. Morris, Ilion

• *To get the fur prices I quoted in the December-January issue I called Mr. Andy Buff at Syracuse. This was in the late summer and he had to go by the tentative price lists sent him from the New York markets. This doesn't mean that the market quota will not be filled by the time our season comes. If the supply exceeds the current needs of the coat and fur processers, then the price drops, and suddenly. It always makes for a good argument as to what is more important: an early season with pelts not completely prime and an active market—or a later season with the skins in better shape, and a slow market.*

The weight for the beaver was misprinted. The maximum should have been around seventy pounds.—H. Wayne Trimm

"It was turrible"

Dear Sir: The enclosed clipping is from the New York Telephone Company's *"Telephone Review."* I think you will find it amusing enough to publish.

Mrs. John Dale, Brooklyn

"Pigeon English"

Metal strips used to band birds under study by the government at one time carried the inscription: "Wash. Biol. Surv."—abbreviation for Washington Biological Survey. Words were changed after a farmer telephoned a local newspaper office to report: "I shot one of those government crows the other day and followed directions. I washed it. I boiled it. I served it. It was turrible."

Credits

Page 3, U. S. C. & G. Survey; 4, 5, 17, 24, 25, 26, Nick Drahos; 6, 7, 13, 15, 20, 21, 22, 27, H. Wayne Trimm; 8, 9, Drahos, P. W. Fosburgh; 11, 23, Roy Irving; 12, 18, N. Y. S. Science Service; 16, James R. Reilly; 28, Earl Cooper, Catskill; 29, Earl McGuirk; 30, McGuirk, Kingston Daily Freeman; 31, Sumner Cowden; 32, Arthur E. Bill; 33, Edward L. Gockler, Saranac Lake.

That Fabulous Fellow—

The Fox

ONE fine February day an old flea-bitten dog fox sat on his furry pants at the edge of a snow-splotched field. He was tired. It was February—the Woo-Moon of the fox—and he had been out chasing a flirty little eight-pound red-head named Vera who preferred another fellow and who was very fast on her feet.

Dawn had begun to yellow stuff up a little and it was time to go to bed. But he didn't. For a new smell reached his nose which is one of the most sensitive in the whole olfactory business. This smell was a concoction of muskrat and fox glands, tincture of valerian, sweet fennel, perch oil, a teenty-weenty bit of Tonquin musk and a dash of lavender salts. So being a sucker for spectacular smells, like all foxes, he trotted up the hill straight to its source. And there he also could detect a trace of iron and a tinge of human and a taint of old meat buried under a skim of snow and dirt. So he knew immediately that somebody had made what trappers call a dirt hole set. It was made clumsily with avoidable tell-tale smells and with too much dirt under the trap's pan.

So this fox struck out one paw very gingerly and scraped a little dirt away—and then some more and pretty soon he dug up the trap and pulled out a bit of chain that had been coiled beneath it. And then he sat down on his furry pants again and looked at the thing and rolled out his pink tongue—for he was still hot. Then he got up and he dug the carrion meat out of the small hole back of the trap. He ate it and went down the hill to the edge of a woods where he curled up atop a rock, covered his face with his tail and went to sleep—all but his ears and nose.

Every so often he sat up to scratch for he was plagued by earmites. Once he left the rock to dig up and swallow a bunch of field mice which several nights previously he had buried in a shallow hole.

Now we'll leave the fox on the rock scratching his mites and digesting his mice. For we merely wanted to introduce you to him before we try to show how curious is the state of affairs which permits his immense resource value to be wasted by a whimsy.

When you say that the Lion is King of Beasts, likely you'll get an argument from other king lovers like those favoring the tiger or the Alaskan brown bear. When you claim the title of Speed King for the cheetah, chances are a lot of greyhound people will holler hogwash. But when you say the fox is King of Controversy, everybody shakes hands and goes to the ice box for cheese and crackers together.

There's controversy among sportsmen over what he eats and how much. There's controversy between houndsmen, the formal huntsman, the small game hunter, the trapper, the orchard owner, the poultryman and the nature lover whether he should be slain and if so, when, where and how. There are some who want a bounty. Elsewhere there's mutiny on the bounty. There's even controversy on how he gets rid of his fleas.

To be sure some of the major controversies have simmered down substantially since the days when there were far more theories than facts about the fox.

Back in the early forties, for example, heavy pressure was widespread, nationally, to pay bounties ranging from $2 to $10 on foxes. But rarely at a sportsmen's club meeting today is the subject even mentioned. This apparently is because the fallacies of the bounty system have now been demonstrated so often that its wastes and weaknesses are generally understood.

Again, it was only a decade ago when most sportsmen seemed to believe that the fox was a major cause of the sharp decline in pheasant populations. Since then scores of game technicians have examined the stomach contents of thousands of defunct foxes. And none have found anything to show that Reynard cuts much ice as a cause of game scarcity, at least under average conditions. Time and again the general pattern of fox food findings is the same—mainly mice and rabbits with fruit and insects next and birds—all birds and their eggs—playing only a small part. However, the fox by no means can be whitewashed as a game predator under *all* circumstances.

Controversies and pressures flourish most when fox populations are high. Obviously, one of the best reasons why populations *are* high today is that since his pelt is almost valueless the normal trapping control is extremely low. You can buy a whole carload of fine Adirondack reds for around 50 cents a pelt—not worth skinning.

When populations become abnormally high, Nature always seems to step in and whittle things down to size. This is accomplished in many ways. The number of young born per litter, for example, may drop far below average. Or disease may flourish and take high toll. Unfortunately, rabies is one of the diseases affecting fox populations. Of course, rabies is always a threat to humans but it is less understood that it may take a serious toll among cattle.

By 1946 it became evident in New York that a program of organized control should be launched to check the spread of rabid foxes. So the Legislature appropriated funds to employ professional trappers. An Interdepartmental Committee on Rabies Control was set up and all hands went to work, the trappers being directed by the Conservation Department according to plans of the Committee.

By the end of 1954 the general area of rabies infection had been well confined to 22 central New York counties behind a barrier zone of maintained fox scarcity often 50 miles wide and extending from Lake Ontario south to the Pennsylvania border. A northern barrier crossing Oswego and Oneida Counties from Lake Ontario to the Adirondacks protects the important St. Lawrence Valley dairy country.

By 1955, these State trappers alone had removed more than 38,000 foxes, mostly from the rabies barrier zones!

Because New York is plagued by unbelievably large numbers of stray and straying dogs—apparently the source of the rabies—it's easy to infect the fox. Rabid animals have been infecting dairy cattle at the rate of 200 to 300 per year. Fortunately its occurrence among humans has been extremely rare.

All this simply because the trapper can't maintain his normal unsubsidized control of fox populations in the face of the present ridiculously low price of the fur.

And why are fox prices so low? In general, it's because the fur fashion folks simply dictate arbitrarily what furs will be fashionable among you gals—and Reynard is out. *Some* day the long-haired furs will be back in vogue. But, sisters, time's awasting.

King of Controversy is that fabulous fellow the fox. And the King of the Cockeyed Economics as well!

—Clayt Seagears

Courtesy of Harry T. Peters and Life Magazine

"TROUT FISHING ON CHATEAUGAY LAKE"

A hundred years ago when A. F. Tait painted this picture of ice fishing on Chateaugay, it's probable no one arose to question either the authenticity of his setting or the legality of the catch. But that was a hundred years ago.

Today's artist, if he were good, might capture the same low temperature, the same swirling snow remoteness—but there would be no ice fishermen in sight. Or, if there were, there'd be a Game Protector on hand to point out: (a) During the winter the season is closed on brook trout; (b) it's illegal to fish through the ice in any waters inhabited by trout, and (c) this is the way to court.

That doesn't mean, however, that ice fishing in New York State is a dead issue. On the contrary, it's a more and more popular winter sport. From the Niagara Frontier where (weather and ice permitting), Lake Erie fishermen pursue yellow and blue pike as far as 7 miles off-shore to Lake Champlain where the "frozen folk" operate ingeniously rigged hand lines through the ice for king-size smelt, fishermen by the thousands are to be found each winter chopping holes in the ice of hundreds of New York's ponds, lakes and rivers.

Any species of fish not protected by law may be taken by tip-ups or hand lines in waters designated by the Department's annual tip-up Order—and also such game fish as great northern pike, pickerel and pikeperch.

But brook trout, No!